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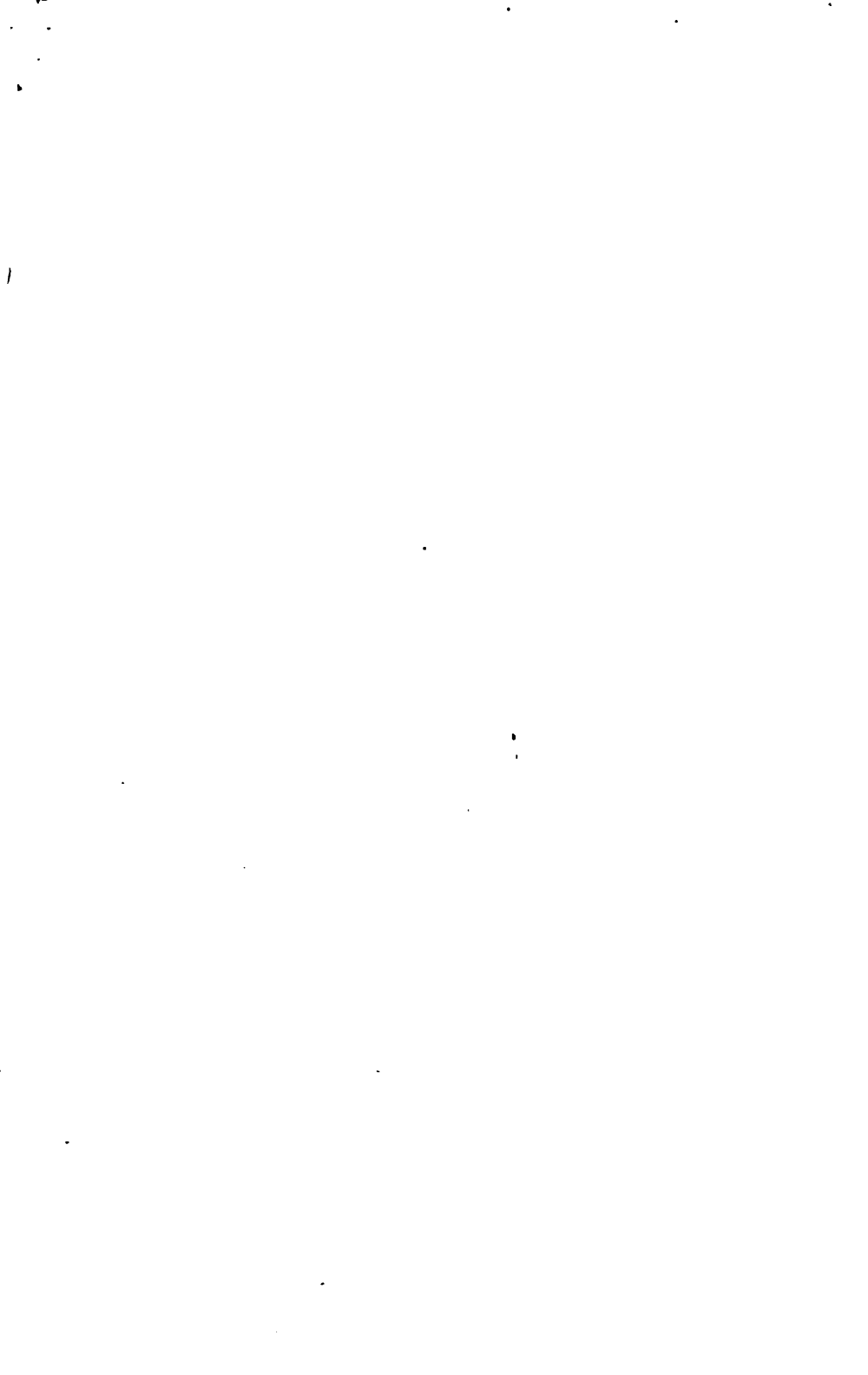
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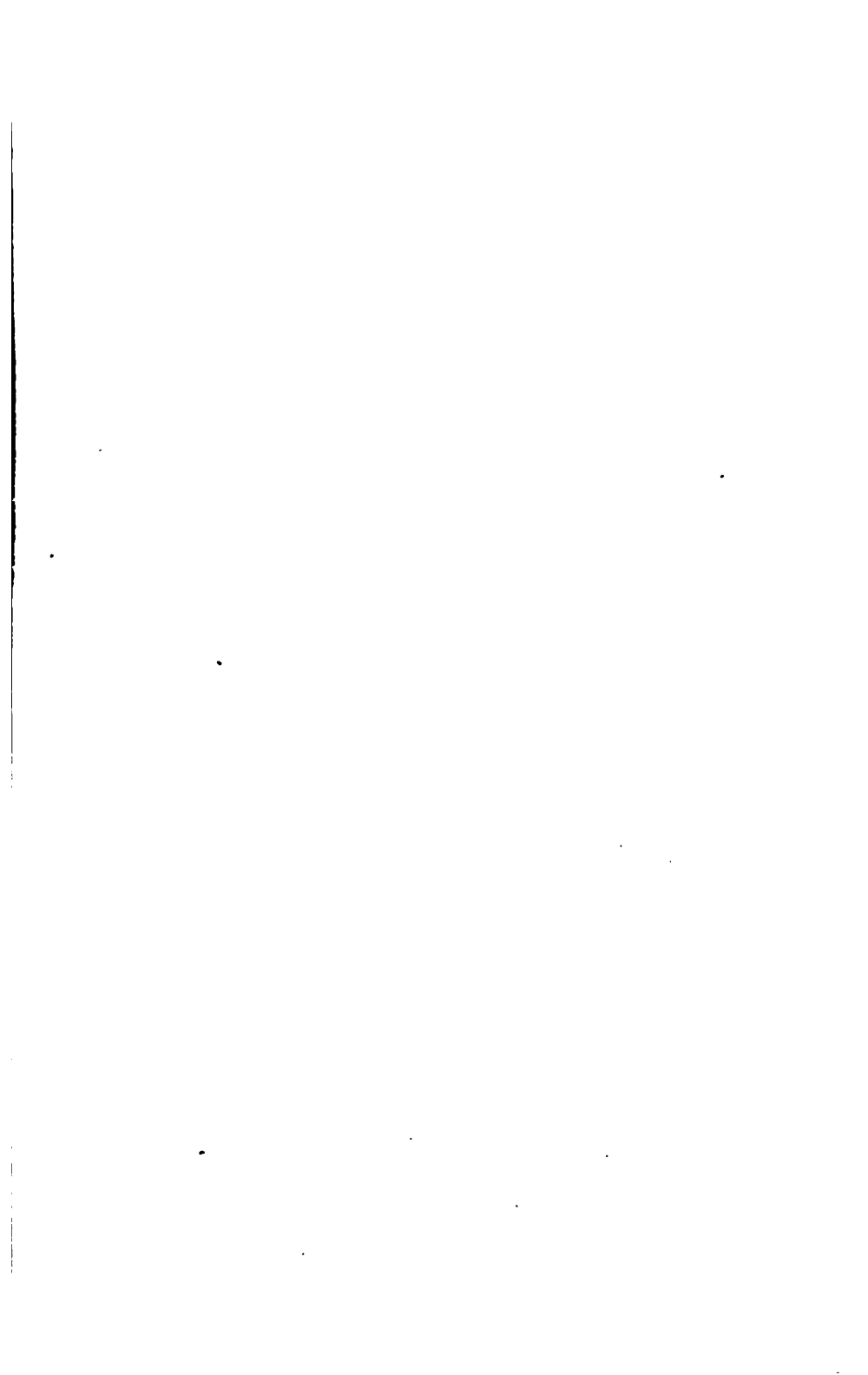
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PROCEEDINGS

OF THE

American Pharmaceutical Association

AT THE

SEVENTEENTH ANNUAL MEETING,



ALSO THE

CONSTITUTION AND ROLL OF MEMBERS.

PHILADELPHIA:
MERRIHEW & SON, PRINTERS,
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1870.



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LIST OF QUERIES

PREPARED AND ACCEPTED BY MEMBERS DURING THE SESSION.

1. What is the medicinal value of the portion of Socotrine Aloes left undissolved by water? And does it contain Aloin in appreciable quantity?
Accepted by Louis Strehl, of Chicago.

2. What is the best, simple and practical method or arrangement for retaining the Ammonia strength of Carbonate of Ammonia in the dispensing bottle or jar?
Accepted by Ambrose Smith, of Phila.

3. Coffee in one or another form has been recommended as an anti-toxic, as a deodorant, and as a means of masking saline bitterness. To what extent are these qualities possessed by Coffee, and what conditions are most favorable to its action?
Accepted by Dunbar L. Dyson, of Bloomington, Ill.

4. What is the mode of action of "Insect Powder," the flowers of *Pyrethrum caucasicum* or *roseum*, as an insecticide? And is there an American plant that possesses a like power?
Accepted by Samuel S. Garrigues, of Saginaw, Mich.

5. *Eupatorium perfoliatum*. An examination of its proximate principles, especially that to which its bitterness is due.
Accepted by Joseph Hirsh, of Chicago.

6. What is the easiest and most practicable method of isolating Glycyrrhizin; to what extent does it possess the power of masking bitterness; and what is its mode of action?
Accepted by Joseph Hirsh, of Chicago.

7. What is the best and most eligible liquid form for the preparation and administration of Guaiac Resin?
Accepted by James T. Shinn, of Phila.

8. The relation of Mannite to Glucose in composition is very close. Can Mannite be prepared artificially, and if so, how? And has it the same physiological properties?
Accepted by Joseph Hirsh, of Chicago.

9. What is the actual influence of Soap on the Resin of Scammony, and on the resinoid matter of Colocynth and Aloes in the compound extract of Colocynth when the whole are dissolved together in dilated alcohol, and is this influence favorable to the medicinal power and value of the preparation? *Accepted by Prof. G. F. H. Markoe, of Boston, Mass.*

10. Is not the proportion of Acetic Acid used in the process of the U. S. P. for Acetic Extract of Colchicum, too large? And to what extent may it be reduced? *Accepted by Edward C. Jones, of Phila.*

11. It has been proposed to substitute Glycerin for Sugar as a solvent and antiseptic in Fluid extracts. Does this ingredient in quantity affect their medicinal power in any way?

Accepted by William J. M. Gordon, of Cincinnati.

12. Pepsin is valued for its medicinal power in connection with disordered digestion. What are the best sources of, and what is the most available process for the preparation of it for medicinal use and for the cuisine.

Accepted by S. Mason McCollin, of Phila.

13. The cold infusion of commercial Wild Cherry Bark sometimes varies considerably in color. Is this due to the time at which the bark is collected, or to what other cause?

Accepted by Joseph L. Lemberger, of Lebanon, Pa.

14. What are the arguments for and against a change of weights in the United States Pharmacopœia, and especially as regards the adoption of Avoirdupois or Metrical Weights by that authority?

Accepted by Edward L. Milhau, of New York.

15. What is the present state of the Foreign Opium trade of the United States, and to what extent is it influenced, if at all, by the culture of the Poppy and the domestic production of Opium?

Accepted by P. W. Bedford, of N. Y.

16. An essay on Filtering Papers and Filters, with general remarks on the important branch of practical Pharmacy in which they are employed.

Accepted by Joseph Hirsh, of Chicago.

17. What is the true power of Camphor as an insecticide? Does it destroy insects already existing in clothing, or does it merely act as a preventive by its odor?

Accepted by Prof. G. F. H. Markoe, of Boston, Mass.

18. Does Cassia Marilandica contain a glucoside principle analogous to that found in Alexandria Senna, by Dragendorff & Kubly?

Accepted by Joel S. Orne, of Cambridgeport, Mass.

19. Gillenia trifoliata. What process will isolate its emetic principle, and what are the characters of the latter?

Accepted by Albert E. Ebert, of Chicago.

20. What is the present condition of the Honey trade in the United States, domestic and foreign?

Accepted by C. F. Stacey, of Charlestown, Mass.

21. What is the best antidote and treatment for Poisoning by Cyanide of Potassium that can be kept ready and used promptly?

Accepted by Louis Strehl, of Chicago.

22. Peppermint is largely raised in Ohio, New York and Michigan, for distillation. What is the present state of this industry as regards extent of production and quality, especially in reference to improvements in purity, based on care in culture?

Accepted by Robert S. Drake, of Piqua, Ohio.

23. What is the most reliable process for obtaining the Tartrate of Potassa that will be ready and uniformly soluble?

Accepted by Edwin Mallinckrodt, of St. Louis, Mo.

24. It having been shown by Charles Bullock that *Veratrum Viride* contains no *veratria*, (the source of that alkaloid for commerce being the fruit of *Asagrea officinalis*), it is queried, does the *veratria* of commerce exist in *Veratrum album*, or has some other alkaloid been confounded with it?

Accepted by S. Mason McCollin, of Phila

25. What is the best process for Assaying Opium, to determine its morphia strength, suited for adoption into the U. S. Pharmacopœia.

Accepted by Wm. Procter, Jr., of Phila.

26.—An Essay on *Abies Canadensis* and its products yielded to medicine and the arts.

Continued to William Procter, Jr., of Phila.

27.—On the present sources of supply and the statistics of the indigenous drug trade of the United States.

Continued to C. Lewis Diehl, of Louisville, Ky.

28.—Soluble Pyrophosphate of Iron in scales is observed to become less soluble by keeping. What is the cause of this change, and how may the salt be obtained of constant solubility?

Continued to G. E. Jeannot, of Louisville, Ky.

29.—The fusing point of true butter of Cacao being near that of the temperature of the body, what is the influence of such additions as wax, tallow, &c., on its fusing point, and to what extent are such additions objectionable as irritants, if at all, in vaginal and urethral suppositories?

Continued to Charles L. Eberle, of Phila.

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PREFATORY NOTICE.

This volume appears about two months in advance of the time when the previous one was finished. Notwithstanding this, there was a delay of about three weeks, occasioned by unforeseen circumstances, beyond the control of the Editor. The prompt forwarding of the phonographic report of Mr. James H. Slade, of Boston, deserves the particular acknowledgement of the Editor, and its almost entire publication will doubtless be looked upon as an interesting feature of this volume, which will also be found of great service as a book of reference, in the very full and complete report on the progress of pharmacy. The report of the delegate of the Association to the third International Pharmaceutical Congress, received shortly after the adjournment of the last meeting, is likewise full of interest.

The request of the undersigned, published in the Prefatory Notice of last year's volume, on page 16, has not met with the expected result, and the names of the following gentlemen had to be left off the roll, their signatures to the Constitution not having been received four months after the meeting took place: Henry G. Boyd, West Chester, N. Y.; Jefferson E. Duncan, Boston; and H. B. Johnson, Anderson, Ind. A few members dropped in previous years have been restored on the roll, after having complied with the Constitution; several resignations have also been withdrawn.

By an unfortunate oversight, the author's name has been omitted on page 386; in the minutes (p. 119), the table of contents and in the index, however, the essay is credited to the author, Mr. Joseph Hirsh, of Chicago.

Of the previous issues of the Proceedings, those for 1854 and 1856 are completely out of print, and none was published in 1861; the others may be had at the following prices:

1851, 1852, 1853, 1855, unbound,	\$.25 each.			
1857,	" .40	bound,	\$.70	
1858, 1859,	" 1.20	" "	1.50 each.	
1860.	" "	" "	1.00	
1862, 1863,	" "	" "	1.25	"
1864, 1865, 1866,	" 1.20	" "	1.50	"
1867,	" 2.00	" "	2.30	
1868, 1869,	" 2.25	" "	2.50	"

The entire set of bound volumes, the first four in paper covers, will be furnished at \$19; the set of unbound volumes, including the bound ones for 1860, 1862, 1863, are held at \$16.

The eighteenth annual meeting of the Association will be held in the city of Baltimore, on the second Tuesday of September, 1870.

THOMAS S. WINGAND,

Chairman of the Executive Committee, 528 Arch St., Philadelphia.

JOHN M. MAISON,

Permanent Secretary, 1607 Ridge Avenue, Philadelphia.

MINUTES

OF THE

SEVENTEENTH ANNUAL MEETING.

First Session.—Tuesday Sept. 7th, 1869.

The Seventeenth Annual Meeting of the American Pharmaceutical Association convened in the Hall of Lombard Block, in the City of Chicago, on the 7th day of September, at 3 o'clock P. M. In the absence of the President, Prof. Edward Parrish, the first Vice President, Ferris Bringham, called the meeting to order. John M. Maisch acted as Secretary.

The Chair appointed the following Committee to examine credentials: Messrs. E. H. Sargent, of Chicago, Henry Haviland, of New York, and James T. Shinn, of Philadelphia. The Committee retired, and subsequently reported the following gentlemen as duly accredited delegates to this meeting from the following Pharmaceutical Colleges and Associations:

From the Massachusetts College of Pharmacy.—Samuel M. Colcord, Ashel Boyden, George F. H. Markoe, Isaac T. Campbell and S. A. D. Sheppard.

From the College of Pharmacy of the City of New York.—P. W. Bedford, Isaac Coddington, Wm. Neergaard, A. W. Weissmann and William Wright, Jr.

From the Philadelphia College of Pharmacy.—James T. Shinn, S. Mason McCollin, Wilson H. Pile, M.D., William Procter, Jr. and Alfred B. Taylor.

From the Cincinnati College of Pharmacy.—R. T. Miller, George B. McPherson, William H. Adderly, William J. M. Gordon and William S. Merrell.

From the St. Louis College of Pharmacy.—William H. Crawford, J. C. Kirkbride, Francis H. Crawley, Ferdinand W. Sennewald, James McBride.

From the Kansas College of Pharmacy.—H. S. Greene, Augustus Breunert, Robert Parham, George Leis, Robert J. Brown.

From the Chicago College of Pharmacy.—Albert E. Ebert, Frederick Mahla, Ph.D., James W. Mill, George M. Hambright, Thomas Whitfield.

From the Saginaw Valley Pharmaceutical Association.—William Moll, L. Simoneau, Samuel S. Garrigues, Ph.D., J. E. Taylor and J. F. Street.

From the Alumni Association of the Philadelphia College of Pharmacy.—Richard H. Shoemaker, Chas. L. Jefferson, Edward C. Jones, William C. Bakes and William H. Raser.

The Chairman of the Executive Committee reported the names of the following applicants for membership, they being duly recommended in accordance with the Constitution :

California.

Jas. W. Blake, Visalia, Tulare Co.
Thos. J. Greatrex, San Francisco.
William Alex. Perkins, "
James Topley, Vallejo, Solano Co.

District of Columbia.

Joseph S. Fitzgerald, Washington.
Richard G. Mauss, Washington.
Weller Rothrock, Washington.
Charles L. R. Sayre, Washington.

Illinois.

Calvin J. Fiske, Chicago.
Charles H. Fitch, "
H. D. Garrison, "
Henry W. Heuermann, Chicago.
A. O. Ingalls, Waukegan, Lake Co.
Thomas N. Jamieson, Chicago.
Newton A. Johnson, Galesburg.
C. S. Jones, Chicago.
A. F. Murray, "
T. H. Patterson, "
David G. Plummer, Bradford,
Stark Co.

Peter J. Singer, Peoria.
Albert A. Smith, Chicago.
Robert Thompson, Bloomington.
A. C. Vanderburgh, Chicago.
James H. Wilson, "

Indiana.

Henry Schrader, Lafayette.

Iowa.

Chas. H. Bennett, St. Paul Junction.
Nathan W. Hunt, Des Moines.

Kansas.

Joseph W. Harrop, Leavenworth.

Massachusetts.

Joseph T. Brown, Jr., Boston.
William F. Horton, "

Michigan.

George R. James, Schoolcraft.
Henry Melchers, East Saginaw.
Samuel H. Wagener, Muskegon.

Minnesota.

Geo. H. Savery, Minneapolis.

Missouri.

Lucius E. Connor, St. Louis.
G. Mallinckrodt, "
O. G. Sherman, M. D. "
Justin Steer, "

New Hampshire.

Charles M. Jones, Great Falls.

New Jersey.

Geo. W. Jacques, South Amboy.

New York.

Henry M. Billings, New York.
Henry G. Boyd, Westchester.
Benjamin Davis, New York,
Hampden Osborne, "
M. L. M. Peixotto, "
William H. Rogers, Middletown.
George J. Wenck, New York.
George Wright, "

Ohio.

Alexander B. Allen, Xenia.

H. C. Gaylord, Cleveland.

Frank Harrington, Logan.

Pennsylvania.

Louis A. Bates, Philadelphia.
John Birch, Pittsburg.
Henry K. Bowman, Philadelphia.
Henry C. Eddy, "
Peter P. Fox, "
George W. Kennedy, Pottsville.
Herman C. Nick, Erie.
H. C. Porter, Towanda.
James S. Robinson, Philadelphia.
Mitchell G. Rosengarten, "
Jacob H. Stein, Lebanon.

Tennessee.

Benjamin Lillard, Nashville.

Wisconsin.

Edward S. Curran, Fond du Lac.
Osma J. Griggs, Tomah.
Alfred Senier, Mazomanie.
Edw. M. Wright, Prairie du Chien.

The Chair appointed Messrs. Edward C. Jones, of Philadelphia, and Charles F. Fish, of Saratoga, tellers, who reported the unanimous election of the candidates.

The Permanent Secretary called the roll, when the following members answered to their names :*

William C. Bakes, Philadelphia.
Paul Balluf, New York.
N. Gray Bartlett, Keokuk, Ia.
P. W. Bedford, N. York.
Charles H. Bennett, St. Paul Junction, Ia.
Henry Biroth, Chicago.
S. S. Bliss, "
J. C. Borchardt "
Ashel Boyden, Boston.
Ferris Bringhurst, Wilmington, Del.
Aug. Breunert, Kansas City, Mo.
Rob. J. Brown, Leavenworth, Kan.
Thos. Brown, Chicago.

C. S. Burrows, Chicago.
Isaac T. Campbell, Boston.
Albert B. Clark, Jr., Galesburg, Ill.
Isaac Coddington, New York.
Walter P. Colburn, Peoria, Ill.
Sam. M. Colcord, Boston.
C. F. G. Collins, Beloit, Wisc.
Wm. H. Crawford, St. Louis.
Francis H. Crawley, "
Ed. S. Curran, Fond du Lac, Wisc.
Mich. T. Curth, Chicago.
Chas. H. Dalrymple, Morristown, N. J.
J. R. Davies, Sturgis, Mich.

* This list contains the names of all the members present at any of the sessions.

- Henry G. D'Evers, Chicago.
 J. W. Dietrich, Dayton, O.
 E. T. Dobbins, Philadelphia.
 T. B. Dorsey, Dresden, O.
 S. H. Douglass, Ann Arbor, Mich.
 R. S. Drake, Piqua, O.
 Dunbar S. Dyson, Bloomington, Ill.
 Charles Eaton, Boston.
 Albert E. Ebert, Chicago.
 John W. Ehrman, "
 Evan T. Ellis, Philadelphia.
 Henry A. Elliott, Baltimore.
 Charles F. Fish, Saratoga, N. Y.
 Henry W. Fuller, Chicago.
 Sam. S. Garrigues, East Saginaw, Mich.
 Henry D. Garrison, Chicago.
 John W. Gilmore, New York.
 Wm. J. M. Gordon, Cincinnati.
 Chas. Wm. Grassly, Chicago.
 George M. Hambright, "
 Henry Haviland, New York.
 Gustavus Hinrichs, Iowa City, Ia.
 Joseph Hirsh, Chicago.
 P. R. Hoagland, Boston.
 Fred. Hoffmann, New York.
 James M. Holland, Jackson, Mich.
 John H. Hooper, Chicago.
 W. F. Horton, Boston.
 T. N. Jamieson, Chicago.
 Chas. L. Jefferson, Philadelphia.
 Newton A. Johnson, Galesburg, Ill.
 Edward C. Jones, Philadelphia.
 J. C. Kirkbride, St. Louis.
 Alfr. S. Lane, Rochester, N. Y.
 George Leis, Lawrence, Kan.
 Frederick Mahla, Chicago.
 Jno. M. Maisch, Philadelphia.
 Edward Mallinckrodt, St. Louis.
 G. Mallinckrodt, St. Louis.
 Emanuel Mann, Ann Arbor, Mich.
 George F. H. Markoe, Boston.
 Eug. L. Massott, St. Louis.
 James McBride, "
 S. Mason McCollin, Philadelphia.
 Edward McInall, Wilmington, Del.
 Geo. B. McPherson, Cincinnati.
 H. J. Menninger, Newbern, N. C.
 Wm. S. Merrell, Cincinnati.
 James C. Meseroll, Jackson, Mich.
 B. F. Miles, Peoria, Ill.
 Edward L. Milhau, New York.
 James W. Mill, Chicago.
 R. T. Miller, Cincinnati.
 Henry C. Morse, Elmira, N. Y.
 W. F. Muchmore, Madison, N. J.
 A. F. Murray, Chicago.
 William Neergaard, New York.
 W. H. C. Onderdonck, "
 Joel S. Orne, Cambridge, Mass.
 James D. Paine, Chicago.
 Robert Parham, Leavenworth, Kan.
 David G. Plummer, Bradford, Ill.
 William Procter, Jr., Philadelphia.
 William H. Raser, "
 L. M. Rice, New York.
 J. H. Richardson, Boston.
 Henry N. Rittenhouse, Philadelphia.
 E. Walton Russell, Baltimore.
 Enno Sander, St. Louis.
 E. H. Sargent, Chicago.
 Edw. T. Schloetzer, "
 Nelson R. Scott, Worcester, Mass.
 Ferd. W. Sennewald, St. Louis.
 S. A. D. Sheppard, Boston.
 James T. Shinn, Philadelphia.
 Wm. H. Shuey, Minneapolis.
 Peter J. Singer, Peoria, Ill.
 Geo. W. Sloan, Indianapolis.
 Ambrose Smith, Philadelphia.
 Chas. B. Smith, Newark, N. J.
 Isaac W. Smith, Philadelphia.
 Edward R. Squibb, Brooklyn, N. Y.
 B. F. Stacey, Charlestown, Mass.
 Jacob H. Stein, Lebanon, Pa.
 Louis Strehl, Chicago.
 Alfred B. Taylor, Philadelphia.
 R. Thompson, Bloomington, Ill.
 E. R. Tourtelot, Chicago.
 Frank J. Tourtelot, "

Chas. A. Tufts, Dover, N. H.	Thos. S. Wiegand, Philadelphia.
H. Van Sweringen, Fort Wayne, Ind.	George W. White, Jersey City.
William S. Voorhees, Morristown, N. J.	Thomas Whitfield, Chicago.
R. C. Wardell, Battle Creek, Mich.	H. M. Whitney, Lawrence, Mass.
Wm. Warren, Brighton, Mass.	Julius H. Wilson, Chicago.
Fred. West, La Porte, Ind.	Louis Woltersdorf, "
Julius Weiss, Monroe, Mich.	Edward M. Wright, Prairie du Chien, Wisc.
Aug. W. Weissmann, New York.	William Wright, Jr., New York.

The Chair called for the reports of Committees, when the following were read by their titles and laid upon the table for future action :

Report of the Executive Committee with the report of the Permanent Secretary.

Report of the Committee on the Progress of Pharmacy.

Report of the Committee on Queries.

Report of the Committee on the Pharmacopœia.

Report of the Business Committee.

Report of the Committee on a Law to regulate the Practice of Pharmacy.

The Committee on Unofficial Formulas reported progress, and desired to be continued for another year.

Mr. Thomas S. Wiegand read the Annual Report of the Executive Committee, and J. M. Maisch, that of the Permanent Secretary.

To the American Pharmaceutical Association :

The Executive Committee respectfully report, that in the early part of the year they had published and distributed the Sixteenth Volume of the Proceedings of our Association.

The delay attendant upon its issue was greater than usual, although every effort in the power of the Committee was made to prevent it ; the great variety and amount of matter has increased the size and cost of the book very considerably, the total expenditure on its account being nearly seventeen hundred and fifty dollars.

There have been received a number of applications for membership, which have been filed and will be reported at the proper time. It is desirable that all desirous of joining our Association should be informed that they are not entitled to any of the rights of members until they have perfected their membership, by paying all the dues as well as signing the Constitution.

The only deaths that have come to the knowledge of the Committee are as follows :

HENRY E. HILL, who for several years past had been doing a fair business in Detroit, died on the 19th of November, 1868, from a pistol shot inflicted by himself whilst laboring under mental depression, occasioned by his pecuniary reverses.

LOUIS M. EMMANUEL, M.D., who died on December 27th, 1868, in the 34th year of his age, of pleuro-pneumonia, having previously suffered from diabetes.

He was regularly educated as a Druggist, graduated at the Philadelphia College of Pharmacy. Having studied medicine, he served in various positions in the Medical Department of the U. S. Army, till mustered out of service, shortly after which he settled down in practice of medicine with his father, at Linwood, Delaware Co., Pa.

He became a member of our Association in 1857, and is spoken of by his friends as being of an affectionate disposition and sincere in his friendships.

EDWIN R. SMITH, of Monmouth, Ill., who has been a member of our Association since 1862, died of a pulmonary affection, under which he had been suffering for some years. He was a graduate in Pharmacy, having received his degree from the Philadelphia College of Pharmacy.

SAMUEL H. WOODS, of Boston, Mass., died this spring, having been a member near ten years.

A great deal of the interest of the report of our Proceedings is due to the intelligent attention of Mr. Slade, who has reported for us for four successive years, each year with increasing advantage to the Association, and the Committee feel it their duty to make this acknowledgement.

Having on former occasions referred to the difficulties under which our Association labors in consequence of its financial embarrassment, it is again noticed with the hope that some plan may be adopted which will enable those charged with the expenditure of its funds to meet the obligations assumed by our Association promptly. This matter will be so fully explained by the Treasurer that further remarks are unnecessary.

THOS. S. WIEGAND, Chairman.

REPORT OF THE PERMANENT SECRETARY.

To the Chairman of the Executive Committee :

Immediately after the last meeting the Permanent Secretary made all the necessary preparations for the speedy publication of the Proceedings, and expected to have them ready for delivery about the first of January. However, several delays occurred, the causes of which could not be removed, whereby the publication was delayed until the beginning of March. Owing to the duties of the Secretary in his connection with the Philadelphia College of Pharmacy, and the time occupied by the examination of the students, a further delay of about two weeks was occasioned, so

that the first lot of the Proceedings for 1868 was shipped to the larger cities by express, on the 17th day of March. The Secretary hopes that his arrangements made in advance of the meeting will enable him to bring the next volume into the hands of each member at a much earlier day.

Fifteen resignations were published last year, of which, however, that of Mr. Samuel S. Bunting must be attributed to a misunderstanding, and that of Mr. Henry S. Biddle, of Detroit, has since been withdrawn. Twenty-one members were dropped from the roll, some of them having been kept on the roll for several years without having paid anything into the Treasury, and seven, because their residence could not be ascertained by the Treasurer or Secretary. There are still some other members on the roll who, having removed from their former places of residence, have neglected to inform the proper officers of such changes.

The entire stock of Proceedings and the books received in exchange and by donation, are now stored in the new building of the Philadelphia College of Pharmacy. The insurance on this stock in the New Amsterdam Fire Insurance Company remains at the sum of \$2500, on which, however, in consideration of the greater security afforded by the new building, the premium has been reduced from 70 to 60 cts. per \$100.

The incidental expenses of the Permanent Secretary during the past year are as follows:

For Postage Stamps,	\$128 37
" Cartage and freight,	111 00
" Packing Boxes,	7 05
" Packing Paper, Twine, Nails,	4 50
" Expenses in Collecting Dues,	2 00
" Telegrams,	95
" Printing of Circulars,	11 50
" Stationery,	2 50
" Insurance,	15 00
" Engrossing Address and Credentials,	7 50
" Filling up Certificates,	20 50
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	\$313 87

The increase in the expenses for postage and freight is in part due to the greater weight of the Proceedings, partly to the correspondence in reference to legislative enactments, to the distribution of the printed report of the former Committee on Legislation, and partly to the furnishing of all the State Libraries with as complete a set of Proceedings as could be furnished. The whole extra edition of the report on the Drug Market, in accordance with the instructions of the Association, was sent to the Chairman of the Committee for 1868-69. The Governors or the State Librarians of nearly all the States and Territories furnished with the Proceedings, have acknowledged their reception, and from several applications were received to complete the set, by furnishing

the Proceedings for 1854 and 1856, which request the Secretary was unable to comply with. The Library of the State of Connecticut has very limited accommodations, and is confined almost exclusively to jurisprudence. For this reason the Librarian, Mr. Hoadley, requested the assent of the Secretary to transfer the copies intended for this Library to that of Trinity College, where the facilities and opportunities for consulting them are much better; of course the Permanent Secretary promptly assented to this proposition.

The diplomas for the gentlemen elected honorary members of this Association at the last meeting were promptly forwarded by mail. Letters of acknowledgement, expressing thanks for the honor conferred, have been received by the Secretary from all but three of the elected honorary members. I shall endeavor to ascertain whether it is probable that the letters have miscarried.

The stock of Proceedings on hand is as follows :

1851,	.	361 in paper covers.		
1852,	.	138	"	"
1853,	.	136	"	"
1854,	.	.	.	Out of print.
1855,	.	147 in paper covers.		
1856,	.	.	.	Out of print.
1857,	.	252 in paper covers,	24 bound.	
1858,	.	83	"	1 "
1859,	.	—		65 "
1860,	.	—		241 "
1862,	.	—		313 "
1863,	.	—		298 "
1864,	.	194	"	108 "
1865,	.	160	"	55 "
1866,	.	78	"	92 "
1867,	.	157	"	118 "
1868,	.	66	"	182 "

The Committee will perceive that the Proceedings for 1854 and 1856 are completely out of print; the Permanent Secretary, however, does not recommend to have them reprinted at the present time.

JOHN M. MAISCH,

Permanent Secretary.

The Permanent Secretary laid before the Association the letters of acknowledgement received from the honorary members elected at the last meeting; also one by Professor Dr. G. C. Ehrenberg, of Berlin, addressed to the President, Professor Edward Parrish, in reply to the address congratulating him to the 50th anniversary of his doctorate.

Pending the appointment of the nominating Committee, the Chair expressed his pleasure in having learned from the report of the Committee on Credentials of the presence of delegates from two new Associations: the Kansas College of Pharmacy and the Saginaw Valley Pharmaceutical Association. He extended to them a cordial welcome. The following appointments were then made:

From the Chicago College of Pharmacy, Thomas Whitfield.

"	Massachusetts	"	"	Samuel M. Colcord.
"	New York,	"	"	William Wright, Jr.
"	Philadelphia,	"	"	William Procter, Jr.
"	Cincinnati,	"	"	George B. McPherson.
"	Kansas,	"	"	George Leis.
"	Saginaw Valley Pharm. Assoc.,			Samuel S. Garrigues.
"	Alumni Association, P.C.P.,			William C. Bakes.
"	Association at large,			William H. Shuey, of Minneapolis;

Charles H. Dalrymple, of Morristown, N. J., and N. Gray Bartlett, of Keokuk, Iowa.

The delegation of the St. Louis College of Pharmacy not having arrived, it was ordered that the first delegate arriving from that College be placed on this Committee.

The credentials of the delegation of the Maryland College of Pharmacy not having arrived, Mr. E. Walton Russell was appointed to represent this College on the nominating Committee.

Mr. A. B. Taylor, the Chairman of the Business Committee, read the following report:

At the last Annual Meeting of this Association the Business Committee was charged with preparing rules of order for the transaction of business.

Upon considering the subject, it was found that to accomplish the desired object would require the compilation of a volume. It was also found that the work had already been done by others who were better versed in parliamentary rules than were your Committee.

We therefore concluded to purchase one of the many treatises on the subject, and herewith present to the Association a volume entitled "Rules of Order; a manual for conducting business &c. By B. Matthias A. M. Philadelphia, 1869," which, it is believed, contains all the regulations, rules and explanations necessary for our guidance.

In order, however, to facilitate the business of the Association, we would recommend the adoption of some changes in our Constitution. Perhaps the most important change is the following:

We would recommend enlarging the duties of the "Committee on Scientific Queries," and changing its name to "Committee on Scientific Papers and Queries."

It shall be the duty of this committee to receive all Reports of Standing Committees, and all Scientific Papers to be read before the Association, or written for publication in its Proceedings; to designate which of them shall be read at length, or which by title, and to prepare or have prepared synopses of such others as it may deem desirable; and, in connection with the Business Committee, to arrange the time which may be most appropriate or convenient for reading them.

It shall be the duty of the Standing Committees of this Association to hand to the Chairman of the Committee on Scientific Papers and Queries, at or before the first meeting of each annual session, a copy of their Reports, together with a synopsis of the contents thereof.

Any person writing a paper to be read before the Association, or for publication in its Proceedings, must hand a copy of the same, together with a synopsis of its contents, to the Chairman of the Committee on Scientific Papers and Queries, at or before the first meeting of each annual session.

Several changes of minor importance have been introduced. The Constitution has been divided into Constitution and By-Laws. The duties of officers, members and committees have been more fully and clearly defined, and a more complete order of business has been arranged.

In order not to consume the time of the Association, it is suggested that the Constitution and By-Laws as proposed be referred to a Committee, who shall examine and report on the propriety of making the proposed changes. If their report should prove favorable, the whole could be read, amended if necessary, and adopted in a very short time; if, however, their report should be adverse, the whole matter could be dropped, and thus no time would be lost.

For Business Committee,

A. B. TAYLOR.

There being no objection raised to the course suggested by the Business Committee in regard to the proposition concerning the Constitution and By-Laws, the Chair appointed on the Committee to consider the changes, Messrs. Henry Haviland, of New York, Ashel Boyden, of Boston, Wm. J. M. Gordon, of Cincinnati.

Mr. Wm. Wright, Jr., as Chairman of the Committee charged with framing a law regulating the practice of pharmacy, reported verbally, that the Committee had attended to that duty and had the draft of the law printed in sufficient number to be distributed among the members present.

MR. MAISCH. It is a very unusual course for a Committee to print a report beforehand, but this being such an important matter, after mature deliberation, the Committee unanimously came to the conclusion to have it printed and endorsed, "To be considered as manuscript." It is not to be used by anybody, but is to be considered as a confidential communication. The reason for pursuing this course was that if the report had been merely read here, it would have been impossible for the members to comprehend all the details. If each member here takes a printed copy they can consider the matter and talk it over privately, so that they will be ready to act when the law shall be called up at a future meeting.

THE CHAIR.—It is expected that each member who takes a copy will feel sufficient interest to read it over carefully, and if there are any suggestions or alterations to be made, he will make them on the margin of the paper, to be spoken of when the law is called up. It is a very important thing, and the object, of course, as stated by the Committee, is to consider it well and mature it before offering it to the meeting for deliberation.

The Permanent Secretary read a portion of a letter from Mr. Wm. Gellatly, Chairman of the Committee on the Drug Market, addressed to Edward Parrish, President of the American Pharmaceutical Association, explaining the causes for failing to report, offering to furnish the usual statistics for publication in the Proceedings, and suggesting the appointment of a Committee to confer with the proper Committees of Congress on the tariff.

DR. SQUIBB.—I hope the precedent will not be established of authorizing the publication of anything that is not prepared at the time of the meeting. I think it would be a bad precedent to establish. It would require the action of the Association in favor of this Committee to authorize it to prepare anything for publication in the forthcoming volume. I think the fact is very prominent before the Association at this time, that the Drug Committee have failed to report, and that being so, we should take no further cognizance of the matter.

THE CHAIR.—Then, if it be the pleasure of the Association, there will be no statistics called for, and there will be no report from the Committee on the Drug Market.

MR. HAVILAND.—Those remarks of Dr. Squibb meet my approval. I think it would lead to great abuse to pursue any other course.

MR. COLCORD.—That has been the practice of the Association. I think there have been votes passed to meet such cases.

The report of the Committee on the Pharmacopœia was now called up.

Dr. SQUIBB.—It will be remembered that at the time of the formation of the Committee on the Revision of the Pharmacopœia, each individual member was directed to report whatever he might have to say independent of the others. It was work that must necessarily be individual work. The Chairman has a report to offer and it has been read by title. It is a long review of the Pharmacopœia; but although interesting to the Association, should not be published without the Association knowing what it consists of. It will take a great deal of time to read the report and consider the remarks it may be necessary to have from the Association. I, for one, as the author of the report, should not be willing for it to go to the Publication Committee without its being heard or scrutinized by the Association. If there be no better way, it might be referred to a special Committee, and they might go over it, although hardly within the time of our present session. The report embraces eighty pages or more of foolscap manuscript, and is a detailed review of whatever the Chairman of the Committee found to criticise in the Pharmacopœia, leaving out any observations upon anything that was not subject to criticism.

THE CHAIR.—There would not be time to hear it at this session, as a matter of course, but it can be called up at any time. As this session terminates with the President's Address, it might be well to fix the time for adjournment.

MR. PROCTER.—By reference to the Proceedings of last year, it will be found that Dr. Squibb read his report at the first session. It happened to be a short report, but it shows that it might be read now without breaking any law. It is proposed to begin it, not to go through with it.

MR TAYLOR.—Mr. Procter and myself are engaged on a Committee of the Philadelphia College of Pharmacy to revise the Pharmacopœia. We are holding meetings every month, and since our report will be embodied in that, I did not think it worth while to make a report to this Association.

Dr. SQUIBB.—In considering this report, it should be remembered that this Association is not entitled to representation in the convention for revising the Pharmacopœia. That is the primary point to be considered in connection with this report. The question is, whether we, as an Association, consider it well to publish such a report in our Proceedings, because further than that we cannot go. There is no doubt but that the Committee of final revision would refer to any such report for all the information they could get, because it is one of the sources from which they would draw information. When we publish it, we publish it to them as well as any body else; further than that the Association need not commit itself, in regard to fathering any such report, because it has no authority to send it to the Convention, nor to use it in any other view than to publish it in the Proceedings as a revise of the Pharmacopœia.

MR. PROCTER.—If the time permits to read the whole of that report, it

appears to me that it is unnecessary to appoint a committee to consider it. We are a Committee of the whole, and no doubt some of us will form opinions on it. The question will come up whether the report be accepted for publication. If the members present disapprove of the publication of some parts, they can suppress them; if it is accepted as a whole and allowed to go as it is, as the expression of this Association, all very well; but when the report is published with the opinions of the members expressed here, the Convention will see the whole.

Dr. Squibb read a portion of the report of the Chairman of the Committee of the Pharmacopœia.

Mr. Bedford moved that when we adjourn, we adjourn to meet to-morrow morning at 9 o'clock. The motion was carried.

The Chair proceeded to read the address of the retiring President.

TO THE AMERICAN PHARMACEUTICAL ASSOCIATION :

In fulfilling my duty as retiring President, to communicate to my fellow members such information and suggestions upon the operations of the past year, the present condition of the Association and its appropriate sphere of usefulness and influence, as may be suited to such an address, my first impulse is to express my regret that very important engagements near home have prevented my participating personally in this reunion.

I would, however, cordially salute all assembled with earnest desires that the present meeting may prove no less interesting and profitable than the last. That was held in the birth place of our Association, where it has oftenest met and has had its largest gatherings; the present is the first held in the great prairie land. Until now the fullness of time had not come for the members of our fraternity to shake hands in the great and growing metropolis of the North-west, and to inaugurate those measures which will extend its numbers and influence into the thriving adjacent States. May we not hope that this meeting will prove a powerful stimulus to Pharmaceutical organization and progress, not only in the West, but throughout our country at large?

Our membership during the past year has increased by the restoration to the roll of those whose names had been suspended on account of arrearages unpaid, to about the same extent as it has been diminished by death. It consists at this date of 763 active members, besides 16 honorary and 11 foreign members. The financial measures adopted two years ago to increase the funds at the disposal of the several committees would have been successful in bringing us through the past year out of debt, enabling us to pay off the accumulated deficit of previous years, but for the slow collections of our annual subscriptions, especially in the cities where the duty of collecting is left in the hands of individual members—here our Treasurer has met with much embarrassment.

In nothing has our organization been so much improved since its origin

as in the appointment of a Permanent Secretary, and I may be permitted to add that a more competent and zealous incumbent of that office could not have been selected. I trust that, when our means will justify it, the salary of the Permanent Secretary and of the Treasurer will be made to bear something like a just relation to the labors devolving upon them. Professor Maisch's intention to resign will make it necessary for the Association to exercise its best judgment in choosing his successor.

The last volume of Proceedings, though its issue was much delayed from causes similar to those reported on previous occasions, is a creditable record of the memorable meeting in Philadelphia; it exceeds 500 pages, and is a publication of which I think its authors may well feel a commendable pride. Our recent practice of publishing the *extempore* remarks and discussions, though sometimes giving circulation to crude and ill-considered opinions and to familiar conversations and *repartee*, and thus derogating, perhaps, from the dignity of the volume of Proceedings, has the merit of increasing the interest to those members reluctantly compelled to be absent, and certainly develops facts of interest and value which would not otherwise see the light.

The great labor of preparing the Annual Reports on the "Progress of Pharmacy," voluntarily assumed by Committees during so many years, exhibits an interest in our Association, and its objects highly creditable to our profession. The Standing Committee on the Revision of the Pharmacopœia will present no united report, though its individual members and others members of our Association, have prepared valuable essays bearing upon this subject. Although our Association, being unincorporated, is not entitled to representation in the Decennial Pharmacopœial Convention, to be held in Washington in May next, and has not a draft of a revised Pharmacopœia to submit to that body, the contributions toward that object submitted at the meeting and published in the Proceedings, should be officially tendered to the Convention as in 1860. It seems appropriate also that some action should be taken at the present meeting encouraging all the incorporated Colleges of Pharmacy to participate in the Convention, and declaring our fealty to it and our determination to aid in the maintenance of the National Standard. If to this could be added an expression of sentiment such as could come with peculiar fitness from a meeting convened in the North-Western metropolis, favorable to the widening of the scope of the Pharmacopœia, so as in itself to meet more completely the manifold wants of the Pharmacist, it might have an influence with the highly conservative and eminently scientific gentlemen to whom the final revision will probably be entrusted. There is a growing need for authoritative standards for a large number of popular remedies which, while they remain outside the pale of officinal preparations, tend to weaken the value attached to the Pharmacopœia by practical business men.

In reviewing the proceedings of previous years, I am led to remark upon

the recently growing importance of the Business Committee at our meetings. This Committee was originally intended to compile unfinished business from the minutes of previous meetings, and to prepare and compile any suggestions contained in the President's address and in reports of Committees, not to supercede the spontaneous introduction of subjects by the members at large. I fear that, as lately construed, its functions have tended to suppress that general participation of the members in the introduction of new business, by which so much variety and interest is imparted to the proceedings, and so many new recruits added to the list of active participants in the affairs of the Association.

The subject of the revision of the tariff as applied to drugs was introduced by my predecessor at the last Annual Meeting, and ably discussed in the report of the Committee on the "Drug Market," and a resolution was adopted declaring that the present high tariff on the importation of drugs is detrimental to the interests of this Association, without yielding a corresponding revenue, if revenue at all. By a recent letter from the Chairman of that Committee, I learn that he has as yet prepared no report, nor has he or his colleagues made any direct effort toward a revision of the Custom House duties then referred to them. I would recommend that this Committee should be allowed to make up a statistical report on the drug market, if practicable, in time for publication in the Proceedings, as I am assured that the Chairman of the Committee is willing to compile and furnish such a report.

The attention of practical men in the employ of the government, is now turned toward the revision of the tariff, and I have been addressed by letter on the subject with a view to co-operation in the work. There can be little doubt that a Committee of this Association would not only obtain a respectful hearing, but by their acquaintance with the trade in its details would be able to give to the officers of government such information as would result in the removal of unnecessary burdens from our business. The provisions of the present tariff with regard to the duties on drugs, involve a large additional expense in the collection of the Revenue, and the yield to the government is relatively so small that it is believed by well informed persons to be far from counter-balancing the loss of the trade with parts of the Continent outside the limits of the United States, for which our commercial cities are the natural markets. The demoralizing effects produced by the evasions of the Revenue laws, the notorious frauds growing out of the collection of these high duties, and the smuggling which is practiced to an enormous extent, are of infinitely more importance than any pecuniary considerations, and should induce all who value the character and honor of our people to inquire seriously into the best measures which can be inaugurated to prevent them.

It is a misfortune that any important question of public policy should be introduced into the political arena, as the mode of raising revenue

upon imports has been in our country. The issue between a tariff for protection and a tariff for revenue has been so long bitterly contested, and so often made the basis of rival political organizations intent on the spoils of office, that impartial and sensible views looking to the public welfare have scarcely had a hearing. Should the Association at its present meeting entrust this subject to a Committee, I would suggest that men be selected in no respect identified with extreme views (such men we have among us)—and we may safely entrust to such the vindication of our honorable calling from the charge of self-seeking, while they present the claims of the legitimate and necessary commerce in drugs to the favorable consideration of our National Legislature.

The Creator has seen fit to distribute most widely over the earth those of its products adapted to the amelioration of suffering and cure of disease. Many of these are indigenous to the hot and productive climate of the Levant, some grow spontaneously on the plains of Central Asia, others are culled amid the dreary sands of Africa, and yet others in the almost inaccessible wilds of South America. The coral strands of the Indian Seas, and the far off Southern Cape, alike with the more familiar countries of Northern Europe and of our own favored Continent, all contribute to the arcana of medicine, and the commerce which grows out of this wide-spread production is one of the great civilizers of the world;—to it we owe the science and the art which it is our pleasure and our pride to cherish and cultivate, and it is fitting that we should at least be consulted in those concerns by which our law-makers may ignorantly make or mar the great interests intrusted alike to them and to us.

Of all the subjects discussed at our last meeting, perhaps none has since claimed so much attention in Committee and by conversation and correspondence among the members, as that of the legal aspects of Pharmacy, and the proposed enactment of laws by the several legislatures regulating the sale of poisons, and prescribing what class may legally dispense medicines in the several States.

A remarkable degree of interest has been manifested by the public at large, especially during the past year, growing out of an unusual number of serious and, in some instances, most criminal accidents occurring in the different cities of the Union. Some of these resulted from ignorance, some from carelessness, while a few, perhaps, may be accounted for by the intrinsic difficulty and danger inseparable from dispensing medicines. The newspapers throughout the country have thoroughly awakened the public attention to the dangers to which all are alleged to be liable, who have occasion to resort to the druggist. Albeit these papers have generally failed to take account of the thousands of lives saved through the precautions adopted by careful druggists and pharmacists, to guard against the results of the ignorance of the people and the carelessness and incompetence of many physicians.

Much injustice has been done our Profession in this discussion, but on

the whole it has perhaps aided the cause we have at heart, that of the elevation of Pharmacy and the increase and spread of education among those practicing it. In this connection, it may be noted that some members of the Medical Profession have been unusually active in certain places, in what may be justly considered an unwarranted interference in our affairs. The details of such interference would be out of place in this address, but we may note the fact that the Medical Society of the State of Pennsylvania officially appealed to the Legislature of the State for the passage of a law which would have subjected every druggist and pharmacist in the State to the espionage of an irresponsible political officer, appointed with authority to visit and examine his stock in pursuit of suspected inferior or adulterated drugs and preparations. Defeated in the passage of this, modified laws were presented, scarcely less objectionable, some of which were prevented from passing only by the personal intervention of a Committee of the Philadelphia College of Pharmacy. No one in the least acquainted with the subject could have approved these laws, and yet pharmacists, aiming to correct the errors of our law-makers, were publicly charged with connivance at fraudulent adulteration. It is, however, due to the State Medical Society to say that, at its last annual meeting, a Committee was appointed to confer in a friendly spirit with the representatives of other medical organizations and of our profession, and thus the benefit of a thorough interchange of sentiment upon the whole subject will yet be obtained. In the meantime the Committee of our Association, appointed last year for this purpose, has, under the lead of its efficient Chairman, had under discussion "a draft of a proposed law to regulate the practice of Pharmacy and the sale of Poisons, and to prevent the adulteration of drugs and medicines." This will be presented for discussion and approval at the present meeting. I cannot too highly commend this law to your serious consideration. Originally opposed to any attempt to prevent by legislation the evils which are so perceptible under our present unrestrained system, I have gradually arrived at the conclusion that the effort should be made now to exhibit to the Legislatures of the several States such a law as, if it could be carried out, would be of immense advantage to the public, and would at once place Pharmacy in its true position. The Committee are aware of some imperfections in this draft, although it is the result of much careful study; I confess to grave doubts of its proving available in States in which our profession is not well organized. It is, however, due to ourselves and to the public that, under the stimulus of the present excitement on the subject, a united effort be made to give pharmaceutical legislation a new trial. Your Committee will no doubt inform you that several Legislatures besides that of Pennsylvania have had this subject before them during the past year, and have postponed it in view of the proposed action of this Association, so that the next session will be the occasion for pressing it on the attention of these. In order to secure this, I would suggest

that, in the event of the Association approving this draft, it should be intrusted to a large committee, consisting of members from all the States represented in the Association, who should avail themselves of every means within their reach to have it fairly introduced and discussed ; among these means none would probably be more available than the action of the leading medical organizations jointly with our own. This we need not fail to solicit, since in this matter our interests are so similar. I would further suggest that, by resolution of the Association, the reputable and well disposed druggists and pharmacists of each State be separately called together at their several seats of government, and the proposed law presented to them for discussion and approval. If a complete registration of reputable druggists, chemists, and pharmacists and their qualified assistants, should be thus effected under the sanction of law, not only would all appreciate the immense strength and advantage gained by this thorough organization, but our profession *en masse* would be soon elevated to a position commanding the respect of the whole community. Notwithstanding this law commends itself as expedient and desirable, it could hardly be expected to meet with general favor immediately. Ignorance and quackery would be strongly arrayed against it, and it would only be by steady perseverance that its public utility could be made to appear.

In some States it could probably never be enacted, and in some would be inefficient if enacted for want of previous organization among druggists and pharmacists. Thorough organization with or without the sanction of law is the greatest desideratum of our profession. This organization should embrace all reputable druggists and pharmacists, and should have for its object, *first*, mutual improvement and support, and *secondly*, the proper education of those who aid us in the present, and succeed us in the future discharge of the delicate and responsible duties of our calling. The motives for such organizations, if it is to be successful, must be above those of individual self-interest. Each member, in joining his energies with those of his fellows, must do so in the full conviction that in a certain just sense

"Self-love and social are the same."

The bane of some attempted local organizations has been that individuals originating them have attempted to make them subservient *primarily* to their own interests and reputation, and *secondarily* to that of the profession at large ; let this rule be reversed and every worthy member of our profession be drawn into the companionship of his fellows, and the best results will flow, not to the profession only, but to every individual in it. A well organized and well maintained society of Pharmacists tends directly to raise the reputation of all its members in the community, while it increases the self-respect of each.

The Massachusetts College of Pharmacy has made a decided step in advance in the introduction of an excellent course of instruction for stu-

dents, during the past year, and we note with pleasure that some of its veteran members, long known among us for their knowledge, skill and integrity, have set a worthy example to their clerks and assistants by themselves submitting to the ordeal of graduation in the College. The spirit of this New England institution, always active in the works of true Pharmaceutical progress, yet thoroughly conservative in all that effects the honor of our profession, insures it a prominent place in the educational institutions of our country.

The latest addition to our local pharmaceutical organizations is the "Kansas College of Pharmacy," which deserves at our hands a cordial greeting, with hopes that it may grow to an importance commensurate with the public spirit of its worthy founders.

In accordance with the authority granted at the last Annual Meeting to appoint delegates to attend the Annual International Congress of Pharmacists on our behalf, I have, with the concurrence of the Executive Committee, issued credentials to our fellow member, John Faber, now sojourning in Germany, and expect he will be in attendance at the Congress to be held in Vienna during the current week.

Having already trespassed on the time of the first session longer than customary for the Presidents' address, I will conclude with the expression of a hope that the meeting may be crowned with the highest success, and that this, with the enjoyment of the members in their social relations, may prove an ample reward for their long journeys from their respective homes, to which at the end may all have safe returns.

EDWARD PARRISH.

On motion of the Business Committee, it was

Resolved, That the suggestions contained in the President's address be referred to a Committee of three for consideration, and reporting thereon at a future session.

The Chair appointed on this Committee Messrs. James T. Shinn, of Phila., Edward L. Milhau, of New York, and Dr. Fred. Mahla, of Chicago.

The Association then adjourned.

Second Session—Wednesday Morning, Sept. 8th.

The Association met pursuant to adjournment, at 9 o'clock, A. M., First Vice-President Ferris Bringham in the Chair.

The minutes of the first session were read and approved.

The Business Committee offered the following, which was adopted :

"Resolved, That the faculty of Rush Medical College and of the

Chicago Medical College and the Medical Profession at large, be invited to be present at our sittings.

Mr. Charles A. Tufts read the Treasurer's Report for the past year, as follows:

To the Officers and Members of the American Pharmaceutical Association:

Agreeable to the requirements of the Constitution, I herewith present a report of the transactions of this office for the past year. All the bills coming to my knowledge have been paid, and there is a balance due the Treasurer of \$29.63.

There are now on the books of the Association the names of 765 members. 83 of this number became members in 1868, leaving 682 members who would have been life members after paying ten years contributions, and free from dues. In 1867 the Association, at its Annual Meeting, passed resolutions making it the duty of the Treasurer to send certain circulars to all members of the Association at that time, requesting them to signify to him if they were or were not willing to become Contributing Members after paying their dues for ten years. The Treasurer has sent these circulars to every member of the Association of whose residence he could obtain information, requesting an answer yes or no to the circulars. Answers have been received from 571 members; 463 relinquish their right to Life-Membership, and 91 decline to relinquish the right. 18 members, while declining to relinquish their right to Life-Membership, have notified the Treasurer that they shall continue to contribute to the funds of the Association until further orders. This makes at the present time 564 permanent contributing members. Of the 91 who decline to relinquish their Life-Membership, 48 have paid for ten years and ceased to be Contributing Members; the remaining 43 will pay from one to eight years before they cease to contribute to the funds of the Association. This makes the total number of Contributing Members at this time 607.

I was desirous to report upon the subject of Life-Membership at this meeting from every member of the Association, but there are still 110 members from whom I have obtained no answers. I have repeatedly sent the blanks to these members—to some of them five and six times each. It would have greatly facilitated the labors of the Treasurer, as well as saved much expense to the Association, if the members had responded promptly to the circulars; while many answered at once, to a large number I had to send the circulars several times before I obtained answers. I had as I supposed a sufficient number of circulars printed to obtain answers from each member; they have been twice printed since, and I fear will have to be again printed before I secure answers from all the members.

In 1866 our Proceedings cost \$1038.15; our expenses were \$552.45. In 1867 our Proceedings cost \$1508.32; our expenses were \$955.04. In

1868 our Proceedings cost \$1724.47, and our expenses were \$1065.46; and as we publish each year more volumes, so our total expenses will be proportionably increased. A part of the expenses this year—for putting up shelves for the storage of our property in the Philadelphia College of Pharmacy, and for freight of our Proceedings to the several State Libraries—will not be incurred another year. Our Proceedings cost us this year about \$2.50 per volume, and our dues are \$3.00 from each member. This leaves but a small margin for the necessary expenses of the Association, and it is very necessary that the members should all pay their dues promptly to enable us to manage our financial affairs without embarrassment. There is a large amount due the Association from the members, and which it is important we should receive as soon as possible. The Treasurer dated the bills this year the 1st of June; it would be well in our judgment to send them out another year at an earlier date. While desirous to be as lenient as possible to the members, a due regard for the interests of the Association demand that the rules governing our financial affairs should be rigidly enforced. We have withheld the Proceedings from all who were in arrears two years. I think the Association should withhold the Proceedings from *all* who are in arrears at the time of publication, until such liabilities are cancelled.

I would again tender my sincere thanks to those members in our large cities who have so kindly assisted me during the past year.

CHARLES A. TUFTS,
Treasurer.

Statement of Receipts and Disbursements of the American Pharmaceutical Association for the year ending September 6th, 1869.

RECEIPTS.

1868.			
Sept. 8th.	To balance on hand as per last report,		\$249 80
1869.			
Sept. 6th.	To amount received for Contributions,		2204 00
	“ “ “ from sale of Certificates,		327 00
	“ “ “ “ “ Proceedings,		52 75
			<hr/>
			\$2833 55
	“ balance due the Treasurer this date,		29 63
			<hr/>
			\$2863 18

DISBURSEMENTS.

1868.			
Sept. 7th.	No. 1. C. Lewis Diehl, Expenses,		\$ 3 95
“ “	“ 2. American Bank Note Co., Certificates,		36 25
“ “	“ 3. L. V. Newton, Expenses,		24 30
“ 26th.	“ 4. S. H. Crittenden & Co., Certificates,		16 75
Oct. 1st.	“ 5. Chas. A. Tufts, Expenses,		44 50
“ “	“ 6. James H. Slade, Phonographic Report,		175 00

Oct. 14th.	No. 7. S. H. Crittenden & Co., Certificates, .	5 25
Nov. 14th.	" 8. Thos. S. Wiegand, Chairman Exec. Com.,	500 00
" 16th.	" 9. American Bank Note Co., Certificates, .	15 00
Dec. 23d.	" 10. Harry H. Goodwin, Expenses, . .	38 00
1869.		
Jan. 12th.	" 11. William H. Clark, Expenses, . . .	24 00
" 18th.	" 12. Henry B. Cook, Expenses, . . .	34 95
" "	" 13. John M. Maisch, Expenses, . . .	53 15
" 20th.	" 14. Thos. S. Wiegand, Chairman Exec. Com.,	24 00
Feb. 1st.	" 15. " " " " " "	37 00
Apl. 29th.	" 16. John M. Maisch, Expenses, Miscellaneous,	199 65
May 25th.	" 17. Thos. S. Wiegand, Proceedings, . .	100 00
July 1st.	" 18. B. Westerman & Co., . . .	1 25
" 19th.	" 19. Thos. S. Wiegand, Proceedings, . .	100 00
" 22d.	" 20. " " " " " "	36 30
" 26th.	" 21. " " " " " "	100 00
" 31st.	" 22. John M. Maisch, " " " "	78 00
" "	" 23. " " " Expenses, . . .	19 85
Aug. 2d.	" 24. Thos. S. Wiegand, Proceedings, . .	150 00
" 17th.	" 25. " " " " " "	150 00
" 23d.	" 26. " " " " " "	260 83
" 25th.	" 27. Chas. A. Tufts, Expenses, . . .	100 00
" 27th.	" 28. Wm. Ruter & Co., . . .	249 34
" "	" 29. Thos. S. Wiegand, Expenses, . . .	56 95
" 31st.	" 30. John M. Maisch, " " " "	100 00
" "	" 31. " " " Miscellaneous, . . .	41 13
Sept. 2d.	" 32. Chas. A. Tufts, " " " "	29 55
" 3d.	" 33. " " " Expenses, . . .	58 23
		<hr/> \$2863 18

EE. All of which is respectfully submitted.

CHAS. A. TUFTS,
Chairman.

On motion of the Business Committee, the report was accepted, and referred to an auditing committee. The Chair appointed to do this duty Messrs. Ashel Boyden, of Boston, P. W. Bedford, of New York, and Robert J. Brown, of Leavenworth, Kan.

Prof. Wm. Procter, Jr., on behalf of the Nominating Committee, presented the following report :

For President,

EZEKIEL H. SARGENT, . . . Chicago, Ill.

For Vice-Presidents,

FERDINAND W. SENNEWALD,	. . .	St. Louis, Mo.
JOHN H. POPE,	. . .	New Orleans, La.
JOEL S. ORNE,	. . .	Cambridgeport, Mass.

For Treasurer,

CHARLES A. TUFTS,	. . .	Dover, N. H.
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Permanent Secretary,

JOHN M. MAISCH,	. . .	Philadelphia, Pa.
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Executive Committee,

THOMAS S. WIEGAND, Chairman,	Philadelphia, Pa.
WILLIAM WRIGHT, JR., . . .	New York, N. Y.
WILLIAM C. BAKES, . . .	Philadelphia, Pa.
SAMUEL M. COLCORD, . . .	Boston, Mass.
JOHN M. MAISCH, <i>Perm. Sec., ex-officio,</i>	Philadelphia, Pa.

Committee on the Progress of Pharmacy,

F. MAHLA, Ph.D., Chairman,	Chicago, Ill.
S. S. GARRIGUES, Ph.D., . . .	East Saginaw, Mich.
GEORGE F. H. MARKOE, . . .	Boston, Mass.
EDWARD L. MILHAU, . . .	New York, N. Y.

Local Secretary, ex-officio.

Committee on the Drug Market,

HENRY W. FULLER, Chairman,	Chicago, Ill.
WILLIAM WRIGHT, JR., . . .	New York, N. Y.
THEODORE KALB, . . .	St. Louis, Mo.
JOHN J. THOMSEN, . . .	Baltimore, Md.
EDWARD S. WAYNE, . . .	Cincinnati, O.

Committee on Queries,

ALBERT E. EBERT, Chairman,	Chicago, Ill.
ISRAEL J. GRAHAME, . . .	Philadelphia, Pa.
N. GRAY BARTLETT, . . .	Keokuk, Iowa.

Business Committee,

ALFRED B. TAYLOR, Chairman,	Philadelphia, Pa.
E. WALTON RUSSELL, . . .	Baltimore, Md.
CHARLES H. DALRYMPLE, . . .	Morristown, N. J.

The Secretary announced the arrival and presence at this session of the delegation of the St. Louis College of Pharmacy.

A ballot being ordered for President, the Chair appointed Edward C. Jones, of Philadelphia, and Charles F. Fish, of Saratoga, tellers, who reported the unanimous election of Mr. E. H. Sargent President for the ensuing year. The remainder of the ticket was then voted for, and the tellers reported the election of all the gentlemen nominated.

The Chair appointed Messrs. William Procter, Jr., and William J. M. Gordon a committee to conduct the President elect to the chair. Mr. Sargent was introduced to the Association as the newly elected President, and on taking the Chair made the following remarks:

Gentlemen, Members of the American Pharmaceutical Association: I am unable to express the sensations which crowd upon me, as I realize the position in which your kindness has placed me. Occupying this chair made honorable by the eminent men who have preceded me, I trust the influence of their example will enable me to fill it without disgrace to the Association. I thank you for the great and undeserved honor you have conferred upon me, yet I have a painful sense of inability to discharge its high duties satisfactorily even to myself. Unused as I am to parliamentary forms, and seeing around me those who have made illustrious their efforts to build up this Association, I can but fear that you have erred in your choice of a presiding officer; yet I shall rely upon the evidence of your kindness, that you will aid me in properly discharging the duties of the office, promising my best efforts, and feeling that you will treat with kind forbearance my lack of experience. I am happy to extend to you, in the name of the Chicago College of Pharmacy, and of the druggists of this city, a hearty welcome. We will do what we can to make your stay pleasant, and we hope this meeting may result in extending still further the benefits and usefulness of our honored Association. As this is your first meeting in the central portion of the Continent, we wish to remind you that the Great West lies beyond us, toward the setting sun, that it deserves your consideration, and we hope at no distant day will be favored by your presence. The older Eastern States have heretofore claimed the Annual Meetings as of right, to which we in future protest in good nature. The Young Giant "out West" is nearly of age, but is still growing, and will hereafter claim his full share of these privileges. We have at this meeting a much larger exhibition of articles from Europe than is usual, owing to the untiring efforts of your Local Secretary. It seems very desirable that such exhibitions of foreign goods, not less than those of home production, should be encouraged, as thereby the interest of the meetings will be greatly enhanced and much

useful information be acquired. To meet a large portion of the expenses of such exhibitions it will only be necessary to allow the articles exhibited to be sold at the meetings, which seems unobjectionable, and if generally known must increase such contributions very largely. We thank you for coming here, and hope that we may be soon again honored by your presence. When you leave us we trust that you will carry with you none but pleasant memories of this re-union and of your friends in Chicago."

The report of the Committee on the Progress of Pharmacy being called up, the Chairman, Dr. Fr. Hoffmann, read portions of the same. On motion, the report was accepted and referred to the Executive Committee for publication, and the suggestions contained therein to the Business Committee for consideration and report at a future session.

The Business Committee suggested the early appointment of a committee to examine and report on the specimens on exhibition. The President appointed the following committee to do this duty:—Thomas Whitfield, of Chicago, Chairman, Paul Balluf, of New York, N. Gray Bartlett, of Keokuk, William H. Crawford, of St. Louis, and Henry J. Menninger, of Newbern.

The Business Committee moved that the consideration of the report of the Committee appointed to draft a Law, be made the special order for to-morrow morning. The motion was adopted.

It was recommended by several members that the various points of the law be privately discussed by the members, so that all might be prepared to vote on the subject without much discussion.

The absence of many members in the exhibition room was commented on, and it was, on motion of the Business Committee, resolved, that the doors of that exhibition room be closed during the sessions of the Association.

Dr. Squibb exhibited the specific gravity bottle alluded to in his report on the Pharmacopœia, and explained its construction and use. An accurate thermometer is suspended in the bottle, which through the stopper connects with a tube, with a scale correcting the capacity for different temperatures. In this way the bottle may be filled at any convenient temperature, and the specific gravity taken at the temperature of the room, while by rotating the bottle the thermometer will act as a stirrer and pre-

vent stratification of the liquid. The capacity of the bottle was a litre, or about a quart. The inaccuracies of thermometers were likewise dwelled upon.

Dr. Squibb finished the reading of the report of the Chairman of the Committee on the Pharmacopœia, which, on motion, was referred for publication.

MR. PROCTER.—As a matter of course, I presumed that would be the course it would take; that it would go to the Publication Committee and be published. I merely wish to put the query, whether the Association intends to adopt the report as the expression of its wishes to the decennial Convention of 1870, in reference to the sweeping reduction of the list of the materia medica, or whether they consider it merely the opinion of the reporter. It seems to me there should be some expression by those present as to whether they accept the report in the sense of the reporter, in that particular, in reference to throwing out so large a number of the substances and preparations; and that it would be well, if the Association does not endorse that part, to have some resolution accompany that report, and modify the effects of it. I don't know that it is necessary, but I felt called upon to say a word in regard to it.

MR. TAYLOR.—The simple acceptance of the report does not adopt it. The report can be brought up again and considered if there are any arguments *pro* and *con* of what would be desirable.

MR. PROCTER.—In my individual capacity it appears to me, in regard to a great many of the preparations and substances recommended to be thrown out, that such a course would be a great mistake, and I base that upon long experience with the prescriptions of physicians and the substances they prescribe; if physicians continue year after year to prescribe those things, it is an indication that they wish them in the Pharmacopœia. Some of the things recommended to be *proscribed* are the things in my experience most frequently *prescribed*, hence, I don't agree with the report in that particular. I have nothing to say in reference to the more important parts of the report,—the processes, etc.

DR. SQUIBB.—I learned this morning, from the manual on your table, Mr. President, that it is not necessary nor competent for a meeting to accept a report made by a Committee of its own ordering; that a report must be accepted, whether the Association desire it or not, and that the adoption of a report carries nothing with it, unless there is a resolution appended to the report, and that resolution is susceptible of acceptance or rejection. It is very proper, when a report comes up that contains matters that are thoroughly individual, so thoroughly individual as these observations of mine, that the Association or society should append to that report, so as not to be missed by any reader, a foot-note or preface, stating that the Association does not adopt the sentiment of the

writer. That has been done hitherto and would be very well done in this case. If a single paragraph could be added, before the report, saying the Association has received this report and published it without authorizing it as an expression of opinion, but merely gives it as an individual report—then the object would be accomplished. I should be glad to have a little discussion on the prominent points in the report; the matters of weights and measures, and the thing that I most of all have at heart, the dilation of the definitions of the *materia medica* list.

MR. PROCTER.—My observation was confined solely to the substances thrown out. If this goes to the decennial Convention as the contribution of this society—indirectly of course, for it is known that we cannot send it directly—from the character of the Association, it will probably be considered as an important contribution to the material out of which the final Committee are to make the *Pharmacopœia*. If it comes from the Association it will be looked upon as the sentiment of the Association, for it will not go with the printed volume so much as on its own merits, and it seems to me right, if it is not the sentiment of the meeting that so many articles should be thrown out, that some little observation to that effect should be made.

DR. SQUIBB.—I think the principle should apply to the whole report. For instance, here comes a man who makes a statement that a certain process is faulty. Now for the Association to refuse to accept the statement would be discourteous to the writer, while to endorse it might be not only beyond the knowledge of the Association, but might be an endorsement of an untrue statement; for although we have all faith in the honesty of the gentlemen who present papers to us, still their statements are based on their own experience, which may not have been extensive, or they may be mistaken results. My practice has not been sufficiently extensive to establish as a fact that certain things are as I have put them down here. I am honest in giving this as my experience, but that does not make it so; therefore I wish to include the whole report as being an individual report. I want to characterize it as an individual report, and as the result of individual experience. I think that is fair and just to the Association and to me to put it on its own merits, and let it go to the Committee on Revision as an individual matter. We do not intend to dictate to that Committee that they shall throw these things overboard, for we have no authority in the matter. I do think, however, that to say that elaborate processes are better than skeleton processes, and elaborate definitions better than botanical or scientific definitions—that those are matters that it is very pertinent for this Association to express itself upon. I do not think the Association ought to authorize or give weight to any report as an expression of truth, for a report is only the truth as seen by the man that writes.

THE PRESIDENT.—Has it not been received as the sense of the Asso-

ciation, without prefacing a report by the note you refer to, that the Association does not endorse a report?

DR. SQUIBB.—People, in taking it up, do not always refer to prefaces to see that the Association does not endorse this or the other opinion. It is always well to let the bane and antidote go together, and not say grace over the whole barrel at once, but put the grace before each meal.

THE SECRETARY.—The Business Committee might consider it and bring in a resolution at some future time.

MR. BRINGHURST.—There is a Committee to consider the President's Address, and there is a special reference in the address to this report; it might come within their province to consider it.

The Secretary announced having received the credentials of the Maryland College of Pharmacy, showing that the following gentlemen have been duly accredited delegates to this meeting: J. Faris Moore, John F. Hancock, E. Walton Russell, N. Hynson Jennings, and Henry A. Elliott.

The Secretary also read a communication from the Metropolitan Glee Club, of Chicago, inviting the members of the Association to participate in their excursion to St. Josephs, Mich., on Saturday next, Sept. 11th, upon the steamer Orion. The communication was, on motion, accepted, and the Secretary directed to return the thanks of the Association for the invitation.

The Auditing Committee presented the following report:

To the members of the American Pharmaceutical Association:

Your Committee appointed to audit the Treasurer's account, would respectfully report that they have compared his books and vouchers and find them correct in every particular. They would further add that the books are a model of neatness and accuracy, and the Association are congratulated that their financial officer is so fully alive to all its interests, and willing to cheerfully perform the arduous labors of his position.

ASHEL BOYDEN,
P. W. BEDFORD,
R. J. BROWN.

On motion of the Business Committee, it was

Resolved, That a Committee of three be appointed to take in consideration the time and place of our annual meeting; that all invitations be referred to them and they report the time and place, subject to the decision of the meeting.

An invitation was received and read from Dr. L. Miller to

visit the Rush Medical College, situated on the corner of Indiana and Dearborn Streets. On motion this was accepted, and the Secretary directed to return thanks for the courtesy extended.

The Association, on motion, adjourned till 3 o'clock P. M.

Third Session—Wednesday Afternoon, Sept. 8th.

The Association met at 3 o'clock, P.M., President Sargent in the Chair. The Permanent Secretary read the minutes of the preceding session, which were approved.

The President announced the following Committee to consider the time and place of our annual meeting: Henry Haviland, of New York, Robert J. Brown, of Kansas, and Henry J. Meninger, of North Carolina.

The committee appointed to consider the recommendations of the Business Committee regarding the Constitution and By-Laws, read the following report:

The Committee appointed to examine the alterations in the Constitution and By-Laws presented by the Chairman of the Business Committee, report that they have examined the subject and find that it requires more time, care and attention than can be devoted to it at this meeting. They would therefore recommend that the subject be referred to a committee to report next year.

HENRY HAVILAND,
Chairman.

Chicago, Sept. 8th, 1869.

The resolution appended to this report was adopted.

On motion of Mr. Colcord, it was resolved that the Committee consist of five members.

Dr. Squibb moved that the President, Secretary, and Treasurer be three of the members of this Committee. The motion was carried, and the President appointed Messrs. William Procter, Jr., of Philadelphia, and Samuel M. Colcord, the remaining two members.

The Chairman of the Executive Committee reported the following applications for membership in the Association, the applicants having complied with the requirements of the Constitution:—

District of Columbia.

John E. Fitzgerald, Washington.

Illinois.

Walter P. Colburn, Peoria.

Chas. Christian Fredigke, Chicago.

O. F. Fuller, Chicago.

Joseph Hirsh, "

B. F. Miles, "

Samuel F. Poorman, Chicago.

Massachusetts.

Jefferson E. Duncan, Boston.

J. Thomas Leary, "

Michigan.

Ottmar Eberbach, Ann Arbor.

Missouri.

Albert H. Mann, Kansas City.

New Jersey.

Ernest Dreher, Newark.

Isaac W. Jacques, "

Theron W. Van Gieson, Newark.

New York.

George H. Fish, Saratoga Springs.

James S. Knowles, Williamsburg.

Pennsylvania.

Chas. C. Matthews, Shippensburg.

Tennessee.

Hugh H. Hampton, Memphis.

George H. Jones, "

The President appointed Messrs. Ehrman and Jamieson, of Chicago, as tellers, who reported the unanimous election of the candidates.

Dr. Squibb read a volunteer paper entitled "Notes on Rhubarb," and exhibited a number of samples of powdered rhubarb of different quality, and showed the influence on its appearance by the contrast of colors when exhibited upon blue and yellow paper. He also showed several cases of the root as imported and selected, after boring each piece; the borings of a whole case give a pretty good idea of the average quality of the rhubarb contained in that case.

Dr. Squibb also read a volunteer paper contributed by Mr. F. C. Mussgiller, on Collodion. He regards it as a mistake on the part of the British Pharmacopœia to have given to the flexible collodion, the kind most generally used, a compound name, —collodium flexile,—whilst the contractile kind, which is little used, is simply called collodium.

When query 1st, on the Origin, Culture and Trade in Rhubarb in China, was called up, the Secretary said:

I have been informed that Mr. Lincoln has taken steps to get as much information as possible from China direct, but has thus far not received it, and it is suggested that the query be dropped; as soon as Mr. Lincoln is able to obtain such information, he will present it to the Association in the form of a volunteer paper.

Query 5, on a nondeliquescent Persulphate of Iron, had been accepted by Mr. F. V. Heydenreich, who has informed the

Secretary that his experiments have as yet not been very successful.

Mr. Thos. S. Wiegand read an answer to query 8, on suitable Glassware for shop furniture and the dispensing business.

MR. WIEGAND.—There is one style of label I did not incorporate into my written remarks, having only been able to obtain the phial after the paper was finished. It consists in the label of enamel, which is affixed to a great deal of the German glassware used for test purposes, particularly for bottles containing acids of certain characters; there is nothing more permanent and more cleanly than the style here presented.

DR. SQUIBB.—I would like to make one remark in regard to the testing of graduated measures which may be useful. The way suggested by Mr. Wiegand is doubtless very accurate and useful, but of late years I have resorted to another, which is rather more simple; that is taking the French graduated pipette; 30 cubic centimetres is a fluid-ounce, or, more accurately, 29.52, and 30 cubic centimetres taken in one of those graduated pipettes gives a nice way of testing graduates. You can ascertain the accuracy of any ordinary graduate in a few minutes by the subdivisions of the French measure.

MR. WIEGAND.—One reason why I did not introduce any such remarks was, I thought where pipettes of that kind could not be had, graduates such as I mentioned might be had, but, certainly, Dr. Squibb's process gives the nicest of all ways I know of, without going to an excess of nicety.

DR. SQUIBB.—The pipettes have been imported lately by the importers of French glassware, and are found in New York of exactly 30 centimetres capacity,—that is one fluid-ounce,—for this very purpose, and for the other purpose, of dividing the fluid-ounce. They cost but little, about \$2.00, and are very useful about an Apothecary's establishment.

Query 9, on the Corks of Commerce, was answered by Mr. P. W. Bedford, who read an essay on the subject.

MR. BEDFORD.—The cork shavings here exhibited are largely used to supercede straw beds. Put into a tick without being sewed or tacked together, at intervals they can be shaken up the same as any other material; the cork does not become hard, but after being used for years is just as pliable as ever. In connection with this subject I would like to show some samples of corks. I stated in my paper that there was one machine which cut taper corks at one operation. To remove the cork from the wood, this is passed under a little lever which removes the cork. Hand-made corks frequently show an imperfection in roundness.

Mr. A. B. Taylor read an answer to query 10, on the proper strength of Alcoholic Menstrua for tinctures of Gum Resins.

The Secretary read an essay by Mr. F. V. Heydenreich, on drugs and preparations officinal in Germany, recommended for adoption in the new U. S. Pharmacopœia.

MR. MAISCH.—I can give my testimony in favor of the correctness of Mr. Heydenreich's remarks concerning the process of the Prussian Pharmacopœia for gun-cotton. It is an excellent process. Nearly the whole of the cotton will dissolve and but very little insoluble matter will be left. It is remarkable that the Prussian Pharmacopœia, which is so very exact in all its directions, allows a variation here. The officinal nitric acid is of a specific gravity of 1.42, the same as our own, but knowing that the acid, even if originally of that strength, loses it by opening the bottle, that Pharmacopœia allows a variation and gives specific directions for using acid of 1.38, also a sulphuric acid lighter than the officinal. Mr. Heydenreich has upon his list one or two articles which are already in our Pharmacopœia, German Chamomile flowers, for instance.

Mr. George F. H. Markoe made the following remarks in answer to query 13, on Commercial Asphaltum :

The subject appeared to me to possess no practical usefulness, and I did not think it worth while to pursue it. All the asphaltum that is used for roofing purposes is made artificially; it is the residue from the distillation of coal tar, the native asphaltum never being used for that purpose. This is also used for making asphaltum varnish, by dissolving it in coal tar benzine,—not the petroleum naphtha, which goes by the name of benzine in commerce. The only practical use I can suggest for it in pharmacy is that it is an excellent gluten to cover over the stoppers of acid bottles; it is used for that purpose by L. Martin & Co., and furnishes an excellent substitute for, and is far superior to, flaxseed meal, or gypsum, the acid having little or no action upon it, and if it drops into the acid it does not discolor it, nor is it dissolved.

Dr. Squibb stated that Mr. Stearns had prepared no paper on query 14, relating to the emoluments and social advantages of pharmacy as a profession and trade, and that he desires to be relieved from answering it.

Mr. Markoe read a paper, in reply to answer 16, on a substitute for camphor as a protection against moths and other insects.

MR. MARKOE.—There is no demand for naphthalene in the American market. The Warren Manufacturing Company, from whom I obtained a barrel—and they only saved it for me after a considerable degree of urging, said they undertook the purification of it, and made some very nice, and afterwards sold it to lamp black makers to make lamp black, showing that there is no demand for it in this country.

DR. SQUIBB.—Coal tar creasote is an excellent protection against moths when applied before the larvæ are hatched, but, like camphor and naphthalene, of no use after they become of a certain size. If woollen clothing or specimens be put away with the eggs of those insects unhatched, a very little coal tar creasote answers a good purpose, and if it be used in a certain way is not objectionable. The best way to use it is to place a few drops of the carbolic acid between the folds of a newspaper so it does not come into contact with the substance to be protected; then place this between the blankets, or into the case where the substances to be preserved are kept. The odors, or rather the vapors, prevent the eggs from hatching; they suspend the natural action of the eggs. That is supposed to be the result. However that may be, furs and other articles, which are now being packed away with it, are treated in this way, and commonly with success; I believe always with success, if the larvæ are not hatched before the substance is used; and if there be no contact between the coal tar creasote and the substance to be protected, a few hours exposure takes away all the odor. It is the unintelligent use of this substance which gives it the bad reputation it has for rendering substances odorous for so long a time.

MR. MARKOE.—The Boston Society of Natural History made use of naphthalene for this purpose. The sample furnished them was the crude article held in mechanical mixture with a considerable proportion of dead oils, or crude coal tar creasote, and to this fact most of its efficiency might be referred. The Secretary of the same Society tried it on some clothing, applying it directly to the clothes, the result being that they were so strongly impregnated with the odor that it was very difficult to get rid of it.

DR. SQUIBB.—Naphthalene, when perfectly pure, I believe is odorless. If that be so, the naphthalene only acts by the small amount of phenols it retains mechanically in the process of partial purification. It is not known how small a quantity of these phenols will protect against insects. I have had some curious experiments with the vapor of the substance. You would be surprised at the great amount of dilution which may be used with these phenols and still attain the result; that is what should be aimed at in such processes, namely, to find out how little of the substance will do it. I would like to know whether it is true that naphthalene is odorless.

MR. HIRSH.—Naphthalene, when it is perfectly pure, is perfectly odorless, but it is not so volatile as camphor, and would hardly be as available for the purpose of destroying insects as camphor. The ordinary purified naphthalene in the market looks white, but only because it is in light flakes; those flakes compressed or condensed by heat show that it is dark and contaminated with a dark heavy tar oil.

The Secretary read two papers; one in answer to query 20,

on the production of *Lycopodium* in the United States, the other in answer to query 30, on a pharmaceutical preparation from *Lactuca Canadensis*.

Dr. Squibb stated that Dr. Duffield has been and still is very ill, so that he was unable to prepare answers to queries 21st and 28th.

Query 22d. An Essay on *Abies Canadensis*.

MR. PROCTER.—I am sorry I have not the answer to that query. The data necessary to answer that question are partially obtained, and some of the experiments are made; but I found it impossible to complete the paper in time for this meeting. If the Association will continue it, I will try to have it ready next year.

On motion of the Secretary, the subject was continued to Professor Procter for another year.

Professor Procter read a letter from Mr. C. L. Diehl explaining that, in consequence of business changes, he had been unable to collect sufficient data for an answer to query 23, which he should endeavor to have by next year, should the Association see fit to continue the subject to him. The query was, on motion, continued to Mr. Diehl.

The Secretary read a letter from Mr. G. E. Jeannot, giving similar reasons for his failure to present an answer to query 25, which was continued to the member.

Mr. Tufts stated that he had just received a letter from Professor J. Faris Moore, regretting his inability to attend this meeting, owing to the sudden illness of an employee; this, Mr. Tufts suggested, might explain why no paper is forthcoming from Mr. Moore, who had looked forward to be present at this meeting.

In regard to Mr. Thos. A. Lancaster's answer to query 32, the Secretary stated that the gentleman had been at work on the subject. Mr. McCollin stated that Mr. Lancaster was probably prevented from attention owing to domestic affliction.

Mr. A. B. Taylor read a volunteer paper on the preparation of fluid extracts, which was accepted and referred.

The President invited all members present at this meeting to assemble to-morrow morning at 8 o'clock at Dearborn Park, for the purpose of having a photographic picture taken.

On motion, the Association adjourned till to-morrow morning at 9 o'clock.

Fourth Session—Thursday Morning, Sept. 9th.

The meeting was called to order at 10 o'clock by President Sargent. The Secretary read the minutes of the preceding session, which, on motion, were approved.

The President stated that the special business before the meeting was the consideration of the law to regulate the practice of pharmacy, as reported by the Committee appointed for that purpose at the sixteenth annual meeting.

The law was accompanied by a "Pro Memoria," the two documents reading as follows :

DRAFT OF A PROPOSED LAW

To regulate the Practice of Pharmacy and the Sale of Poisons, and to prevent the Adulteration of Drugs and Medicines.

PREAMBLE.

Whereas, the safety and welfare of the public is endangered by the sale of poisons by unqualified or ignorant persons; and *whereas* in all civilized countries it is found necessary to restrict this species of traffic and to provide by law for the regulation of the delicate and responsible business of compounding and dispensing the powerful agents used in medicine; and *whereas* the adulteration and sophistication of drugs and medicines is a species of fraud which should be prevented and suitably punished; therefore be it enacted, &c.

Section 1. From and after the day of it shall be unlawful for any person to keep open shop for retailing, dispensing or compounding medicines and poisons, unless such person shall be a *registered pharmacist* within the meaning of this act, and shall also conform to the regulations as to the keeping, dispensing, selling and compounding poisons hereinafter provided; and every shop kept open for the retailing, dispensing and compounding of medicines and poisons shall be under the direct personal care, oversight and management of a registered pharmacist or registered assistant in pharmacy, and every registered pharmacist owning more than one such shop shall employ at every such shop, except the one he himself manages, a registered assistant in pharmacy, to manage and supervise that particular shop only.

Sect. 2. No person shall be allowed to assume, use or exhibit the title of *Registered Pharmacist* or *Registered Assistant in Pharmacy* unless he shall have actually been registered as such in accordance with this Act.

Sect. 3. No person shall be entitled to become a registered pharmacist unless he be either a graduate in pharmacy, a practising pharmacist, or a practising assistant in pharmacy.

Sect. 4. *Graduates in Pharmacy* shall be understood to be such persons only as have obtained the diploma of a regularly incorporated or chartered *College of Pharmacy* within the United States; and also persons possessing a diploma

or degree from some pharmaceutical institution situated in a foreign country, said diploma being acknowledged and endorsed by the Pharmaceutical board of this State as sufficient to entitle such person to be considered a Graduate in Pharmacy.

Practising Pharmacists shall be understood to be such persons only as at or prior to the passage of this Act have kept and continue to keep open shop within this State for dispensing and compounding the prescriptions of medical practitioners, and for the sale of drugs and medicines.

Practising Assistants in Pharmacy shall be understood to be such persons only as shall have attained the age of twenty-one years, and who shall have served four years' apprenticeship in a shop where the prescriptions of medical practitioners were dispensed or compounded, and who shall have passed an examination by the Pharmaceutical board of this State as hereinafter provided.

Sect. 5. On or before the first day of June after the passage of this Act, and every third year thereafter on or before the same date, the incorporated Colleges of Pharmacy and Pharmaceutical Societies of this State shall submit to the Governor the names of twenty pharmacists or professors in Colleges of Pharmacy, out of which number the Governor shall appoint seven persons who shall constitute the Pharmaceutical Board of the State of _____, who shall hold office for the term of three years and until their successors shall have been appointed; and in case of removal from the State, resignation or death of any member, the Governor shall appoint in his place a registered pharmacist or a professor in a College of Pharmacy to serve as a member of the Board for the remainder of the term.

Sect. 6. The duties of the Pharmaceutical Board shall be to examine all candidates presenting themselves; to direct the registration by the Registrar of Pharmacists of all persons properly qualified or entitled under this Act; to cause the prosecution of all persons violating its provisions; and to report annually to the Governor on the condition of pharmacy in the State, and such suggestions as they may deem expedient.

Four members of the Pharmaceutical Board shall constitute a quorum; they shall organize by the election for the entire term of a President and a Secretary, who shall sign all certificates and other official documents; they shall meet at least twice a year, and shall have power to make by-laws for the proper fulfillment of their duties under this Act; they shall likewise have power to prepare a list of foreign Pharmaceutical Institutions or Colleges, the diplomas of which will be recognized as equivalent to the diplomas of Colleges of Pharmacy in the United States, and to endorse their approval on any such diploma when presented to them; for said endorsement they shall be entitled to a fee of five dollars.

All persons applying for examination shall pay to the Pharmaceutical Board ten dollars; and, if passing the examination, shall be furnished with a certificate in accordance with Schedule E of this Act, for which certificate no fee shall be exacted or paid.

Sect. 7. Immediately on the passage of this Act the Governor of the State shall appoint a *Registrar of Pharmacists*, who shall hold office for three years, at the end of which time a successor shall be appointed or the same person re-

appointed; and in case of the death, resignation or removal of a Registrar before the expiration of his term of office, the Governor shall appoint some person to the office for the remainder of the term.

A Registrar guilty of any misconduct or malfeasance in office shall, in addition to the penalties hereinafter provided, be removed from office, and a successor appointed by the Governor.

Sect. 8. The duties of the Registrar shall be to keep a book in which shall be entered, under the supervision of the Pharmaceutical Board, and in the form set forth in Schedule B to this Act, the name and place of business of every person doing business in this State who shall apply to him in the form prescribed in Schedule C to this Act, producing proper evidence in accordance with sections three and four of this Act that he is a *graduate in pharmacy*, or a *practising pharmacist*, or a duly qualified *practising assistant in pharmacy*. It shall also be the duty of the Registrar to erase from his register the name of any registered pharmacist who may have died or removed from the State, and to make all necessary alterations in the location of persons registered under this Act. For the first registration as registered pharmacist, the Registrar shall receive a fee of five dollars. *Provided*, that all persons in business at the time of the passage of this Act, shall be entitled to registration on paying one dollar.

And in order to enable the Registrar to duly fulfil the duties hereby imposed upon him, it shall be the duty of every registered pharmacist, upon changing his place of business, to forthwith notify the Registrar by letter of such change, and to enclose a fee of one dollar, upon receipt of which notification and fee the Registrar shall make the necessary alterations in his register. And it shall be the duty of every registered pharmacist to communicate by letter to the Registrar each year, on the first day of December, whether he still continues practising pharmacy at his registered place of business, and to enclose a fee of one dollar for the insertion of his name and business address in the register for the ensuing year; and on or before the tenth day of January in each year, commencing with January, 18 , said Registrar shall notify every registered pharmacist who shall not have written to him as aforesaid; and in case an answer, enclosing an additional fee of fifty cents, shall not be received by the Registrar within fourteen days, such registered pharmacist shall be stricken from the register, and his name be at once reported by the Registrar to the President of the Pharmaceutical Board. *Provided always*, that his name shall be restored to the register on payment to the Registrar of a fee of five dollars, and in case more than one year has elapsed since the date of sending the aforesaid notification, he shall also produce proper evidence of being entitled to registration, in like manner as if his name had never been registered. All aforesaid notifications sent by said Registrar shall have printed on the outside an inscription directing their return to the office of the Registrar, in case the persons to whom they are addressed cannot be found.

Graduates and practising assistants in pharmacy shall, upon application to the Registrar in the form set forth in Schedule D to this Act, be entitled to be entered as registered assistants in pharmacy at an annual fee of twenty-five cents.

The Registrar shall, on the written demand of any registered pharmacist or registered assistant, accompanied by a fee of twenty-five cents, give him a certificate under his own hand, setting forth, in the manner presented in Schedule H to this Act, that such person is so registered.

No name shall be entered on the register except of persons authorized by this Act to be thus registered, nor unless the Registrar be satisfied by proper evidence in accordance with this Act, that the applicant is entitled to be registered.

The Registrar shall, in the month of March of each year, cause to be printed and published, as nearly as may be in the form of Schedule B of this Act, a correct list of the names of all registered pharmacists and registered assistants, arranged in the alphabetical order of their surnames, with their respective places of business, and such printed list shall be entitled the *Official Register of Pharmacists* within the State of _____; a copy of which, or a certificate under the hand of the Registrar, shall be evidence in all the courts of this State that the persons therein specified are registered according to the provisions of this Act, and the absence of the name of any person from such printed register shall be presumptive evidence that such person is not registered according to the provisions of this Act; and each and every registered pharmacist within the State shall be supplied by the Registrar with a copy of said official register of pharmacists, to be sent by mail free of charge, and the postage thereon prepaid.

Sect. 9. Any Registrar who shall wilfully make or cause to be made any falsification in any matter relating to the said official register of pharmacists, and any person who shall wilfully procure or attempt to procure himself to be registered under this Act, by making, or producing, or causing to be made or produced, any false or fraudulent representation or declaration, either verbally or in writing, and any person aiding or assisting him therein, shall be deemed guilty of misdemeanor, and shall, on conviction thereof, be sentenced to be imprisoned for a term not exceeding twelve months, nor less than three months, and in addition thereto may be fined a sum not exceeding one thousand dollars, to be paid into the State Treasury.

Sect. 10. And be it further enacted, that any person not a registered pharmacist, who shall after the _____ day of _____ 18____, keep open shop for the retailing or dispensing of medicines and poisons, or who shall take, use, or exhibit the title of *Registered Pharmacist*, shall for every such offence be liable to a penalty of fifty dollars, to be paid to the Pharmaceutical Board to defray expenses, and such penalty shall be sued for and recovered in the same manner as is now provided by the Revised Statutes of this State, for the recovery of penalties in other *qui tam* actions. *Provided, however,* that in rural districts, where there is no registered pharmacist within three miles, it shall be lawful for retail dealers annually to procure licenses from the registrar of pharmacists, at a fee of one dollar, as retailers of poisons, and all sales of poisons by persons so licensed shall be recorded in a book kept for that purpose only, in the same manner as provided in Sect. 13 of this Act.

Sect. 11. And any registered pharmacist or authorized retailer of poisons, who shall fail to comply with the regulations of this Act in regard to retailing,

dispensing and compounding of poisons, shall be liable to a penalty of fifty dollars for the first offence, and one hundred dollars for the second and every subsequent offence, and such penalty shall be sued for, recovered and paid to the Pharmaceutical Board of this State in the manner provided in Section 10.

Sect. 12. But be it provided, that nothing hereinbefore contained shall apply to, or in any manner whatever interfere with, the business of any practitioner of medicine who does not keep open shop for the retailing, dispensing or compounding of medicines and poisons, nor prevent him from administering or supplying to his patients such articles as may seem to him fit and proper, nor with the making and dealing in proprietary remedies, (popularly called patent medicines), unless such medicines should be wholly or partly composed of any of the articles enumerated in Schedule A, nor with the business of wholesale dealers in supplying poisons according to the ordinary course of wholesale dealing to retailers and physicians, and for use in the arts.

And upon the decease of any registered pharmacist, actually in business at the time of his death, it shall be lawful for any executor, administrator or trustee of the estate of such registered pharmacist, to continue such business, if and for so long only as such business shall actually be conducted by a registered pharmacist or registered assistant in pharmacy; but if such person be not registered, he must cause himself to be registered within twenty days of his commencing to conduct the business of said decedent, under the same penalties as are prescribed in the tenth section of this Act, which penalties shall be collected from the estate of said decedent.

Sect. 13. And be it further enacted, that from and after the day of , it shall be unlawful for any person to sell, either by wholesale or retail, any poison, without distinctly labelling the bottle, box, vessel, or paper, and wrapper or cover in which said poison is contained, with the name of the article, the word poison, and the name and place of business of the seller.

Nor shall it be lawful for any registered pharmacist, or authorized retailer of poisons, to sell or dispense a poison without being satisfied that it is for legitimate use, and before delivery to the buyer, making or causing to be made an entry in a book kept for that purpose only, to be preserved for at least five years, and to be always open to the inspection of the Pharmaceutical Board, the Registrar of Pharmacists, the Board of Health, the Coroner, and the officers of the different Courts, stating in the form set forth in Schedule F, annexed to this Act, the date of the sale, the name and address of the purchaser, the name and quantity of the article sold, and the purpose for which it is stated by the purchaser to be required. *Provided,* that no article shall be considered a poison, within the meaning of this Act, unless such article be enumerated in Schedule A, annexed to this Act, or shall hereafter be declared a poison by law.

Sect. 14. The provisions of Section 13 shall not apply to articles to be exported, nor to any articles forming part of the ingredients of medicine compounded in accordance with the written prescription of a practitioner of medicine; but all prescriptions, whether or not composed in part of an ingredient or ingredients declared by this Act to be poisonous, must be carefully kept by the pharmacist on a file or in a book kept for that purpose only, and

numbered in the order in which they are received or dispensed; and every box, bottle, vial, vessel, or packet containing medicine so dispensed, must be labelled with the name and place of business of the Pharmacist so dispensing them, and be numbered with a number corresponding to that on the original prescription retained by the Pharmacist on his file or book, as aforesaid. Such prescription must be preserved at least five years, and shall be open to the inspection of the writers thereof, and a copy must be furnished by the pharmacist, if demanded by either the writer or purchaser, or both, for which copy or copies the pharmacist shall not exact any fee.

Sect. 15. From and after the passage of this Act, it shall be unlawful for the proprietor of any pharmaceutical shop to allow any person not a graduate or a practising assistant in pharmacy, to compound or dispense the prescriptions of physicians containing poisons, except as an aid under the immediate supervision of said proprietor, or a graduate, or a practising assistant in pharmacy.

Sect. 16. From and after the passage of this Act, all persons who shall knowingly, intentionally and fraudulently adulterate or cause to be mixed any foreign or inert substance with any drug or medical substance, or any compound medicinal preparation recognized by the pharmacopœia of the United States or of other countries as employed in medical practice, with the effect of weakening or destroying its medicinal power, or who shall sell the same otherwise than in the unbroken original package put up by the manufacturer and labelled with his name and address, or who shall sell such unbroken original package knowing the article contained therein to be thus adulterated, shall be guilty of a misdemeanor, and on conviction thereof before the Criminal Court shall forfeit all the articles so adulterated and shall pay a penalty not exceeding one thousand dollars, and in addition thereto may be sentenced to imprisonment not exceeding one year; said fine to be recovered and paid over to

Sect. 17. It shall be the duty of the Pharmaceutical Board of this State to appoint for such counties where the necessity therefor is deemed to exist, and subject to the approval of the Court of Quarter Sessions, one or more experts; and whenever a distinct charge or accusation is made, under oath or affirmation, before an Alderman or Justice of the Peace, that there is reasonable ground for believing that any dealer or manipulator of drugs, wholesale or retail, is guilty of any of the charges specified in Section 16 of this Act, such accusation to be substantiated by an examination or analysis of the alleged adulterated drug or preparation by said expert, together with a sample or samples of the articles examined or analyzed, the said Alderman or Justice of the Peace may issue authority to search for and arrest the sale of the adulterated articles until the case can be acted on by the grand jury, and, if a true bill be found, until the Court decides by competent testimony for or against the defendant.

Sect. 18. All other Acts and parts of Acts inconsistent with this Act are hereby repealed.

Sect. 19. This Act shall be known as the Pharmacy and Poison Act, 18 , and may always be so cited, described and spoken of.

SCHEDULE A.

Aconite and its preparations.
 Arsenic and its preparations.
 Belladonna and its preparations.
 Cantharides and the tincture.
 Chloroform.
 Cotton Root and its preparations.
 Corrosive Sublimate.
 Croton Oil.
 Cyanide of Potassium.
 Digitalis and its preparations.
 Ergot and its preparations.
 Henbane and its preparations.
 Hydrocyanic Acid.
 Nux Vomica and its preparations.

Opium and its preparations, paregoric excepted.
 Oxalic Acid.
 Poison Hemlock or Conium.
 Savine.
 Strychnia and all poisonous vegetable alkaloids and their salts.
 Tartar Emetic.
 Volatile Oil of Bitter Almonds, of Pennyroyal, of Savine, and of Tansy.
 Proprietary or secret medicines recommended, sold or advertised as Emmenagogues and Parturients.

SCHEDULE B.

DATE.	NAME.	PLACE OF BUSINESS	QUALIFICATIONS.	REMARKS.
1870. Jan. 10.	A. B.	329 Broadway, N.Y.	In business within this State prior to the passage of the Pharmacy and Poison Act, 18	
Jan. 11.	C. D.	Athens, Greene Co., N. Y.	Graduate in Pharmacy of Maryland College, of class 1862-63.	Died June 11, 1870.
Jan. 20.	E. F.	280 Fulton Street, Brooklyn, N. Y.	Practising assistant in pharmacy, examined by Pharmaceutical Board of this State on day of 1870.	July 8, 1870. Removed to and carries on business on his own account at 48 John St. Ithaca, N. Y.; has passed examination of College of Pharmacy of the city of N. York, June, 1870.
Jan. 29.	G. H.	Middletown, N. Y. With A. B., city of New York.	Registered assistant in Pharmacy. Graduate of the Mass. College of Pharmacy, Class 1868-69.	September 1, 1870. Commenced business on his own account, 136 Lake Street, Buffalo, N.Y.

SCHEDULE C.

Declaration by a person applying to become Registered Pharmacist under the Pharmacy and Poison Act, 18

To the Registrar of Pharmacists of the State of _____ I, _____
doing business (or about to commence business) at _____ in the County
of _____ State of _____ hereby declare, that I kept open shop for
dispensing and compounding the prescriptions of medical practitioners at
_____ in the County of _____ and State of _____ on or be-
fore the _____ day of _____ 18 ____; or am a graduate of the

College of Pharmacy, Class 18 ____; or am a graduate of the [foreign in-
stitution], my diploma having been acknowledged and endorsed by the Phar-
maceutical Board of the State of _____ on [date]; or am a practising
assistant in pharmacy, holding a certificate of qualification by the Pharmaceu-
tical Board of this State, dated _____ (as the case may be).

(Signed.) Name.

Dated this _____ day of _____ 1886

Affidavit.

SCHEDULE D.

Declaration by a person applying to become Registered Assistant in Pharmacy.

I, _____ of _____ hereby declare, that I am a graduate of the
College of Pharmacy, Class 18 ____; or am a graduate of the [foreign
institution, date.] my diploma having been acknowledged and endorsed by
the Pharmaceutical Board of the State of _____ on the [date]; or am a
practising assistant in pharmacy, holding a certificate of qualification by the
Pharmaceutical Board of this State, dated _____; and apply to be entered
as registered assistant in pharmacy.

(Signed) Name,

Dated this _____ day of _____, 18 ____

Affidavit.

SCHEDULE E.

Certificate of qualification to be issued by the Pharmaceutical Board to practising Assistants in Pharmacy.

This certifies that _____ of _____ County of _____ State
of _____, has produced satisfactory evidence to the Pharmaceutical
Board of the State of _____ of having served not less than four years as
an apprentice in a shop or shops where the prescriptions of medical practi-
tioners were dispensed; has been properly examined by this Board, (appointed
by the Governor, in conformity with Section 5 of the Pharmacy and Poison
Act, 18 ____) and on ballot, after such examination is declared, by a proper vote
of this Board, to be competent to dispense poisons and compound medicines,
subject to all legal restrictions. In testimony whereof the Officers of this
Board have hereunto signed their names this _____ day of _____ 18 ____



SCHEDULE F.

Form in which registered pharmacists and retail dealers in poisons shall keep their poison-book.

Date.	Name of Purchaser.	Name and quantity of poison sold.	For what purpose said to be required.	Remarks.

SCHEDULE G.

Form of license to be issued to retailers of poisons in rural districts.

I, _____, Registrar of Pharmacists, at the written request of _____, County of _____, State of _____, and upon his written declaration that no registered pharmacist is situate within three miles of his place of business, have, in accordance with the provisions of Section 8 of the Pharmacy and Poison Act, 18 _____, and upon payment by him of one dollar, do hereby issue to him this license, authorizing him to retail poisons under the restrictions provided in said Act.



(Signed) _____ Name,
Registrar of Pharmacists
Of the State of _____

Office No. _____ Street,
Town, _____
County.

Dated this _____ day of _____, 18 _____

SCHEDULE H.

Form of Registrar's Certificate to be given a registered Pharmacist or registered practicing Assistant in Pharmacy.

This is to certify that _____ of _____ County of _____ State of _____, was entered on the [date], at the office of the undersigned as *Registered Pharmacist (Registered Assistant in Pharmacy)* in conformity with the Pharmacy and Poison Act of this State.

Given under my hand and seal, [town], this _____ day of _____ 18 _____



(Signed) _____ Name,
Registrar of Pharmacists.

PRO MEMORIA.

1. In its present shape, the proposed law recognises all persons actually in business on their own account at the passage of the Act as entitled to be entered as registered pharmacists.

2. All persons not then in business on their own account will have to sub-

mit to an examination, or become graduates in pharmacy, before they can become registered pharmacists.

3. The title "registered pharmacist" is applied for convenience only to those actually engaged in business on their own account.

4. The title "registered assistant in pharmacy" may be obtained by all graduates in pharmacy and (examined) practising assistants in pharmacy.

5. Anybody may become an apprentice in pharmacy, and practically all are regarded as such until they have graduated at a College of Pharmacy, or have passed an examination before the Pharmaceutical Board; such then become *practising assistants*.

6. The titles "graduate" and "practising assistant in pharmacy" confer a certain standing in law, and in consequence a certain responsibility. All who are neither graduates nor (examined) practising assistants, are in the eye of the law still apprentices.

7. After an apprentice becomes a graduate or (examined) practising assistant, he may become a registered pharmacist by opening a store.

8. The advantage a graduate possesses over a practising assistant lies in his being entitled to become a registered pharmacist in all or any of the States (which enact this bill) simply upon the exhibition of his diploma; while a practising assistant in pharmacy may accept a situation in any State, but cannot *take charge* or become *proprietor* of a store without being examined again in the State to which he has removed.

9. Hence it follows that, while proprietors of stores are *compelled* to register annually, and for this reason ought to have a distinct title, qualified assistants, whether graduates or (examined) practising assistants, enjoy by virtue of their diploma or certificate of qualification all the rights and privileges to which they aspire, and the public the proper security; these are therefore not compelled to register, though it will be their obvious interest to do so.

10. The Pharmaceutical Board provided for in this law is to be appointed by the Governor out of nominations made to him by the several pharmaceutical organizations, and the registration is to be under the direction of this Board; it is also made one of its duties to prosecute all persons guilty of violating any of the provisions of this law.

11. The Registrar is to be appointed by the Governor. He is to publish annually an official register of pharmacists, which will be a valuable list of those authorized by law to prosecute the responsible business of dispensing medicines and poisons.

12. Practising physicians and wholesale druggists and country store keepers located three miles from any registered pharmacist are excepted from the action of this law, but the latter class must be licensed as retailers of poisons.

13. The provisions regulating the sale of poisons correspond nearly with those of the existing laws of some of the States. That restricting the independent compounding of prescriptions to graduates and assistants should be carefully considered by the Association before its adoption.

14. The provisions for the conviction and punishment of adulterators of drugs and medicines, and for the prevention of the sale of the same, are believed to be such as public sentiment demands; and, whether found efficient or not, may be well enacted into law, as a terror to evil doers.

MR. WRIGHT, of New York.—Most of the members have had printed copies of this proposed bill put into their hands, and I don't know that it needs any further debate now, except for the members to make any suggestions which occur to them.

MR. MAISCH.—For the purpose of bringing the matter properly before the meeting, I move that the "Draft of a Proposed Law to Regulate the Practice of Pharmacy and the Sale of Poisons, and to prevent the Adulteration of Drugs and Medicines," as reported by the Committee, be adopted.

The Secretary's motion was seconded.

MR. BARTLETT.—This law is one having a very important bearing upon the Association and upon the profession at large, and I think it is desirable that we should hear individual expression of opinion upon the bill before it is put to vote. Without having given the subject any careful attention, I will mention one objection I have to the bill. The passage to which I allude is in regard to the qualifications of practising assistants in pharmacy, and registered pharmacists.

Mr. Bartlett read Sections 2, 3 and 4 of the bill and then continued :

You will observe by this law that Graduates in Pharmacy shall be entitled to be made Registered Pharmacists without any examination. That is a very good provision and certainly unobjectionable ; following that it will be seen that the qualification which entitles a man to be regarded as a registered pharmacist is the simple fact that he has sufficient capital to own a store ; nothing more is required, so far as I have observed. At the same time, his clerks, notwithstanding they may be more competent than the proprietor, are not entitled to that distinction until they have passed an examination by the board appointed for that purpose. It seems just that a standard of intelligence should be required for apothecaries, and that owners of stores and their clerks should both pass an examination, or that there should be some other standard of admission. I observe that this is a compromise ; that it is intended to prevent opposition by the druggists generally to the passage of the Act. I will suggest an alteration in the reading of this document, so that apothecaries assistants may become registered pharmacists, after having been a certain number of years in a retail store, without having any examination at all. I think either the standard of qualification ought to be adopted, examining both apothecaries and their apprentices, or else, apprentices should be allowed to become registered pharmacists without the examination. I don't think too much benefit should be given to capital ; it has already predominance over intelligence, and I don't think we care to increase that predominance.

MR. MAISCH.—The view that Mr. Bartlett has taken of this matter, I

think, is a little erroneous. There is no predominance given to capital over intelligence at all. It was at first the opinion of the Committee who framed that law, that every one, even those who are in business at the present time, should undergo an examination. On asking, however, for legal information on the matter, it was found that if any such law was passed it would undoubtedly be declared unconstitutional, as an *ex post facto* law. It therefore became necessary to recognize all who are, at the passage of such a law, practising pharmacists, that is those who keep open shop for the dispensing of medicines and putting up of prescriptions; it became necessary that they should all be placed on an equal footing with those who are graduates, with those who have been properly educated for their business, even if they have nothing to bring forward except the bare fact that they own a store. Every one, according to this law, who keeps open shop, is entitled, as is provided in section four, to become registered; as soon as he ceases to keep open shop, as soon as he sells his store, this passage ceases to be applicable to him; he then falls under the general provisions of the law which require an examination. I think that is very clear. The introduction of the title of "Practising Pharmacist" became necessary in order to insure the first registration; that is all. Afterwards, after the first registration in the State has been effected, there are only two classes who can become registered pharmacists, viz.:—The graduate in pharmacy and the practising assistant in pharmacy,—one who has undergone a regular examination before the pharmaceutical board.

MR. MERRELL.—I think there ought to be some amendment in regard to the time which apprentices must serve before they can be examined as assistant pharmacists. That law is very good so far as taking young apprentices into our stores is concerned. We take an apprentice at the age of fifteen, for instance; he ought to study four years before he can be examined, but we find a great many men who are going into the apothecary business, who have not served regular apprenticeships as druggists or pharmacists, but yet can become qualified for this duty in much less time than four years. We find many physicians who get broken down in health, or who for some other reason wish to take up the business of the apothecary. If a man has come to the age of maturity, studied medicine as a profession and been properly graduated, it is not necessary for him to spend an apprenticeship of four years before he is qualified to dispense medicines. In a single year such a man can become well qualified for that duty. A man may be acquainted with medicines and their properties generally, and be a man of mature years and proper education otherwise, and this law unnecessarily cuts off a good many such, who wish to become pharmacists, and who do not need to spend an apprenticeship of four years before they can go behind the counter.

MR. EBERT.—Would it not be well for us to adopt this law as present-

ed to us by the Committee? to adopt it as a law and then take it up section by section? If we are going to consider it indiscriminately in this way, we shall not get through to-day. I think the best plan would be to adopt the report.

MR. MAISCH.—In my opinion, the best plan perhaps would be to speak first of the principles enunciated by this law, and then, afterwards, if they are found to be correct, take up the bill section by section. If we all agree upon the principles, there will be very little difficulty about the details. Such little things as Mr. Merrell has objected to, I think can be very easily remedied, although I must confess I do not entirely agree with him.

MR. COLCORD.—I was going to ask what the adoption of this law means. When we adopt it, what is it? In what shape does it stand then? Does it stand as a document that we are to present to the legislatures, or when the legislatures call on us are we to say that is the law we would ask them to give? What is the meaning of adopting it?

MR. EBERT.—It is just to adopt the report of this Committee.

MR. COLCORD.—And that report presents a law for us to present to each one of the Legislatures of the States?

MR. EBERT.—I understand after we have gone over each section and modified it so that it becomes the opinion of the society, we are to send it to the different Legislatures of the States as the law we wish them to pass.

MR. COLCORD.—Then the motion is on the adoption of the report?

MR. MAISCH.—That was my proposition for the purpose of bringing it before the meeting. As regards the proposition of Mr. Ebert, I believe he simply means to accept the report. That report has been tacitly accepted by the very fact that the Association set apart this morning for the discussion of it. It has been accepted, but not adopted, and my motion was to adopt it.

MR. COLCORD.—So far as I am individually concerned, I should prefer that no State should be approached with this law at all. I think it would be inoperative, if enacted, and that we should get no good results from it; but, if a state is determined to have a law to regulate apothecaries, I don't know but this is the best law we can present. If the adoption of this report carries this law from this Association to every State, and places us in the position of asking them to adopt it, I go against the adoption of the report; but if the law is proposed as a law which we should like, or, if they are going to pass an act, that we can put this in as our act, then I am for the adoption of the report, but prefer that it should not be passed at all to be placed before any State.

MR. MAISCH.—On the part of the Committee that framed that law, I desire to state that an attempt has been made during the last winter—the winter of '68 and '69—in a number of States to pass a law. In Penn-

sylvania, for instance, several bills, I think not less than three, perhaps more, have been before the Legislature, and it has been our endeavor to stave off action thereon for the purpose of bringing a law approved by the American Pharmaceutical Association before that State. We are bound in Pennsylvania to present a law, or else we shall have one which is obnoxious, not only to the apothecaries, but, on close examination, likewise, undoubtedly to the public. In the State of Ohio a law has been before the Legislature, and your Secretary has been in communication with that Legislature. The Committee of the Legislature agreed to wait for the presentation of a law from the American Pharmaceutical Association, and to enact that as the law of the State of Ohio if they approved of the provisions of it. In the State of New Jersey a bill had been prepared, but I believe not presented to the Legislature. Your Secretary has been in communication with the gentleman who framed that law; they likewise agreed to wait for the law of the American Pharmaceutical Association. In the State of New York a bill was passed during the last session, which, I believe actually don't amount to anything, notwithstanding it stands on the statute book, and it is one of those obnoxious laws which may give trouble to the honest and well-minded apothecary, while it does not do a particle of good to the public. There are four States, at least, therefore, and three of them the largest States in the Union, that are determined to have a law on the subject of Pharmacy, and for that reason, if the American Pharmaceutical Association should not adopt such a law, it becomes necessary for the Associations existing in those various States to take the matter up themselves and try to frame and present a law before the Legislature. Unanimity of action will then be wanting; we shall have one law in one State and another and entirely different law in another State.

MR. WEST.—This law, proposed to be passed by this Association, if passed, will be a matter of national importance; it will be a law universal for all the States of this Union. From a general and cursory view of the law, I think it is entirely inadequate and impracticable for most of the Western States. In a large proportion of our Western States—Indiana, Illinois, Iowa and Wisconsin—it would be impossible for any Legislature, or any law, to carry out the principles of that law, and it seems to me that it is not certainly practicable for this Association to draft a law with these provisions for the benefit of all the States. In Pennsylvania and many of the Eastern States, where Colleges of Pharmacy are already established, and where suitable boards could at once be organized by the Governors of the States, it would be practicable to carry out these principles, but in a large proportion of the States it could not be done.

MR. MAISCH.—Why?

MR. WEST.—For the reason that there is not a sufficient number of educated pharmacists in many of the States to establish the first board and carry it out.

MR. WRIGHT, of New York.—Which State, Sir?

MR. WEST.—Indiana.

MR. WRIGHT.—I doubt it, Sir.

MR. WEST.—In many of the towns and cities we have no men who are properly qualified to carry out the provisions of that law. It seems to me it would be better for the Association to adopt a few general principles to present to the different Legislatures of the States as a nucleus for them to form their own laws, adapted to the wants and interests of their communities.

MR. MAISCH.—In regard to the remarks of Mr. West, I have to say, on the part of our Committee, that we did not see the slightest difficulty in organizing a proper board in each of the various States. That board, if it is composed of the best pharmacists residing in that State, will certainly represent the pharmaceutical education—the *general* pharmaceutical education of that State. The examination in one State may differ from the examination in another State; they may be less stringent in Indiana than they will be in New York or Pennsylvania; that may be the case; but does that hinder the State of Indiana from saying what shall be the qualifications of those who intend to open pharmaceutical establishments therein? Would it not be competent for that State to say “We don’t want any pharmacist in the State of Indiana who knows less than this pharmaceutical board, composed of our best men? When the State of New York says the same thing for New York, it may perhaps mean a different standard of qualification; notwithstanding that, that qualification will be applicable to the State of New York, while the other will be applicable only to the State of Indiana. I don’t see the slightest difficulty there. We have certainly enough pharmacists who have been brought up to the business in each one of the States. I go further than that; we have certainly enough pharmacists in most of the Territories to form such a board. I can assure you that I have, as your Secretary, been in correspondence with a great many pharmacists throughout the United States, and I must say that there are a great many whom I, just merely from the letters I have received from them—from the correspondence I have had with them—should consider perfectly qualified in their States or Territories to become members of such a pharmaceutical board to examine applicants for the position of registered pharmacists.

MR. WRIGHT.—I think Mr. West’s objection may be removed very easily. Whatever law we pass will be an expression of the opinion of the Association, and all those young States which are not ready for a law regulating the practice of pharmacy, may stave off any inconsiderate action of outsiders, until they get ready for some such law as the Association shall approve.

MR. DIETRICH.—Had we not better take this up by sections; read

each section and discuss it? I will say I think there is a feeling in the State of Ohio to have something done, and I know the Legislature last winter postponed action until this Association met. I was myself at our State Capital. The member that drew the bill was from our county, and was in correspondence with Mr. Maisch, and he withdrew the bill for the time to await the action of this Association. If in order, I move that the bill be taken up by sections, each section being read separately, and discussed and disposed of.

The motion of Mr. Dietrich was seconded, and a division being called for, the Secretary stated that 47 members had voted in the affirmative, 19 in the negative; the President declared the motion carried.

MR. PROCTER.—In taking this bill up section by section (which has already been done in the Philadelphia College of Pharmacy) I know how much time will be consumed. Why could we not take up section by section the principles involved in the bill? There is one principle involved,—that of qualification; another, that of registration; a third, in reference to the sale of poisons; a fourth, in reference to the adulteration of drugs. Those are the four cardinal points in this law. Let us take up the question of registration, or first, if we choose, that of qualification, and discuss it without reference to all these details. I think it is a perfect waste of paper to take such a law as this and give it to a legislature like that of Minnesota and expect them to be governed by it. I know in Pennsylvania you could do nothing with it; you could do it in Philadelphia, but not in Pennsylvania. They would say, "If you want this in Philadelphia you may have it, or anything else; but we are not going to bind ourselves." The same thing will be true in the other States; they will legislate for the Cities but not for the whole States. It would save time if the Chairman should ask "Will you have registration in this law?" "Will you make a law requiring certain qualifications of all that go into the business after the law passes?" and then decide what that qualification shall be. Then, "Will you let it embrace the regulation of the sale of poisons?" "Will you make it include the adulteration of drugs." Many of our druggists think we should have nothing to do with the latter; that if the States wish a law to punish druggists for any such thing, they should be left to enact it; and that the proper ground for us to take is that high-minded druggists will not do it, and if there are rascals among us, they should be punished at common law.

MR. TAYLOR.—The question on taking this up by sections was taken a little too soon: there might have been a little expression of opinion similar to that by Mr. Procter. I think it would be very desirable that we should settle the general principles in the first place; whether this is the best arrangement of a law that we can adopt; whether the objects can best be accomplished by registration, etc.; and having decided upon the gen-

eral principles, then, it seems to me, would be the proper time to take it up by sections and finish out the matters of detail of the law.

MR. BROWN.—I am satisfied it will be impossible for this body in two days to frame a law that will suit all the States. There will be a diversity of sentiment from all the States, and if it should suit the people of the East, it may not suit the Western people. If this body should almost unanimously adopt the law, some of the parties who might be opposed to it in the different States would carry that opposition to their legislatures, and defeat the law. It would seem, therefore, that each State should be left to rest on its own merits, letting the individuals of each State frame laws to suit themselves, and then the West can be satisfied as well as the East.

DR. SQUIBB.—We have already decided to take up the law by sections and discuss it. It is competent to start by discussing the preamble. I feel so stultified and confused in reading the law, and have so little knowledge that I can render available for myself in expressing what I believe in regard to it, that I am obliged to throw myself back on convictions which I cannot sustain by reason. My convictions lead me to oppose anything more than an expression of the principles we desire to see carried out. I do this on the broad principle that any trade or profession is, through self-interest, perhaps the least qualified authority in framing laws for restraining and controlling itself; and, as an illustration of how this may be so in our case, it is only necessary for me to recall the fact that there would never have been pharmacists, except there had been physicians preceding them. Their vocation is entirely supplementary to the vocation of the physician; yet, here is a law that ignores physicians, and does not recognize the physician's diploma as entitling him to practice pharmacy, or to register as a pharmacist, while he is the only competent authority of the pharmacist and uses the medicines which the pharmacists prepare. I am willing to admit that the pharmacist knows more about preparing and compounding medicines than the physician does,—not more than he should, but more than he does; that the pharmacist is the abler of the two in his profession, but that can never change the fact that the pharmacist is naturally and properly subordinate to the physician. I regard this action as I should similar action on the part of the surgeons if they should attempt to prevent physicians from practising surgery. The profession of medicine at the start consisted of men whose business it was to cure disease. When their business of curing disease became so large, or their time was so much occupied that they could not attend to the collection, preservation and compounding of the articles they used, an art grew up upon medicine for this purpose, and this art constituting pharmacy was the first specialty that ever grew out of the science of medicine. The next specialty was surgery, which was separated from medicine at a later day, and is, like pharmacy, an art subordinate to medicine. Now then, if the surgeons should convene and undertake

to frame laws whereby physicians should be prevented from opening boils, or bleeding, or doing any of the surgical work of the profession, it would be equivalent to our proposed action. Next, the ophthalmologists might separate themselves and seek to prevent physicians from looking at diseased eyes, or attempting to cure them; and so with all the other specialties that have grown, or may grow out of medicine. These can no more be separated from medicine as a science than any one can from the other; and, therefore, I oppose a prominent principle of this bill, namely, that physicians have nothing to do with pharmacy. I may be met by the statement that that can be easily remedied; that a physician's diploma could be admitted as evidence that he was entitled to have something to do more than prepare it for his own individual use, but still it is an effort at unnatural separation and independence of one branch of medicine from the general science, while the harmony of its subordinate departments is that upon which their success must mainly depend for utility to mankind. The great thing aimed at in this bill is that there shall be a standard of qualification. Now, sir, this same qualification is a double-edged sword. The qualified pharmacist is also best prepared to carry out some of the mismanagement we aim to correct; the unqualified and ignorant man is unequal to the successful quackery of the day, and therefore often less dangerous. I am not an opponent of education nor an apologist for ignorance, and am an advocate for qualification, but I also advocate something more than qualification, and oppose this bill because it aims only to establish an elastic qualification. There are other objectionable features in the bill, and the consideration of it by sections may wind up by the defeat of the whole bill, after we have spent all day in going over it. I think it would have been better to decide first whether we would have such a bill or not, and if we decide we would and that this is acceptable in principle, then take it up section by section and modify it; otherwise, there is a risk of our time being wasted in going over it and then defeating it.

MR. WRIGHT.—The Association at the last meeting decided to have a bill, by appointing a Committee to draft one.

DR. SQUIBB — It appointed a Committee to propose a bill, and they propose it on the ground of the opinions of that Committee. That Committee have worked sedulously, arduously and laboriously, and we all owe thanks to them, particularly to one or two members, whom it would be invidious to signalize further. We know they have worked well and heartily, and I am glad to see heartiness in any Committee; but the question comes up whether the judgment of the Committee is to be adopted by the Association. I don't think the Association ever intended to adopt whatever bill that Committee might bring.

MR. CODDINGTON.—If we don't propose a law there will be laws passed during the coming year by several of the States which may be very objectionable to the apothecaries, and I do not see the force of Dr. Squibb's

objection to the apothecaries proposing a law for themselves. The physicians would not admit any apothecary to practice medicine, and they are continually raising objections to their giving opinions over the counter, and making a great deal of fuss about that. I think the apothecaries have attained a standing now that will enable them to manage their own affairs without any sort of clashing with the interests of the physicians.

MR. COLCORD.—I did not oppose the taking up of this bill by sections for the purpose of prolonging the discussion; I did it for the purpose of bringing the discussion upon the bill itself in its general aspect. I have but very little to say about the particulars of the bill. I object to the whole of it on the ground that I spoke of before, and for that reason I wanted to see the discussion brought upon the bill to see whether we would have a bill of that kind. There are plans which may be better, but I wanted an opportunity to speak on the bill and not on the sections of it. If we begin on the sections, I agree that there is no end to this discussion. For this reason I want the discussion to come on the adoption of the report. I would like to speak on the bill, but I cannot speak on the particular sections.

MR. WRIGHT.—I move that Mr. Colcord be heard on his objections to the bill.

MR. WEST.—Although I voted in the minority, I would move a reconsideration of the action of the Association upon considering the bill by sections.

MR. BROWN.—I move the adoption of this preamble.

MR. TAYLOR.—It seems to me we should not adopt the preamble or any section of the law until we decide upon one or two general principles upon which we are to proceed. We shall adopt the preamble, section one and two, and all the sections, and when we get to the end of it we will drop the whole thing. That, I think, will be the result. It would be much better to start on the general principles, and say whether we approve of the principles on which this bill is based; whether we think registration is the best starting point for the law, &c. Having decided that, the sections can be considered, and the minor details can be settled without any trouble.

MR. PROCTER.—That is my opinion, and I think Mr. Maisch would be willing to withdraw his proposition.

MR. MAISCH.—It is not my motion; it was Mr. Dietrich who moved to take it up by sections.

MR. DIETRICH.—My object in doing so was to expedite matters. It seems to be the idea that it will not have that effect. I want to have a hearing on the subject, and I therefore move a reconsideration.

The motion to reconsider the vote, ordering the bill to be

taken up by sections, was carried; the question was then taken on the original motion of Mr. Dietrich, which was lost.

MR. PROCTER.—I now propose the question in this form: Does the Association desire to have registration as one of the principles to be embodied in any law or document issuing from this body for the use of the legislatures of the several States? I think it must be admitted that we cannot propose a law that all will adopt, but we can enunciate the principles that will guide these law-makers in framing laws to embody as much as possible of the principles we would like to see in the law. The first proposition is, Is the Association willing to have a law embodying registration.

MR. WEST.—As I understand it, the report of the Committee is before us.

THE PRESIDENT.—It seemed to me the ideas of Professor Procter were eminently correct; that the principles embodied in this bill should be first discussed, because if we do not want a bill with these principles in it, we do not want this one, and if we cannot have the larger part of the principles here embodied, we certainly don't care any further for this bill, and therefore it can be laid aside. I think the present action of the meeting is likely to lead to the best results—to take the bill up in its principles, one by one.

MR. SHINN.—If any member present can suggest any better basis on which to found legislation, I think it would be very well for that member to state it now. The committee have proposed registration as the more feasible plan; if any member can suggest another one, let us hear it.

THE PRESIDENT.—It struck me that Prof. Procter's suggestion was for the expedition of the business, and that by following it this bill might be reached in the shortest possible way. It does seem to me that these few principles involved in the bill, when settled, virtually settle the fate of the bill.

MR. SHINN.—Mr. Procter wished to know the sentiment of the Association in regard to registration.

MR. PROCTER.—The object of my proposition was this: that the four principles stated, (there may be more; I have not looked at it carefully) are certainly the foundation stones of that bill. If the Association can agree to have a bill with registration, with qualification as a basis for the practice of pharmacy after the passage of this bill, with an embodiment in reference to the sale of poisons, and with some expression in relation to the adulteration of drugs embodied in the bill, then they have a bill prepared. As to the details of that bill it will not make much difference. If we send that bill to Ohio, for instance, we shall not expect its adoption in precisely the form in which we send it, but we shall say, "Gentlemen, here is a bill that embodies the principles we would like to see put

in form by you for the regulation of Pharmacy. You need not take the bill as it stands; there may be a great deal of verbiage in it; some of the points you may leave out, but embody these general principles." If we can agree on these main points we can agree on any bill.

DR. SQUIBB.—The object of this Committee—the ultimate object—seems to have been qualification; and registration is simply used as a means to ascertain the qualification. Registration is rather the instrument whereby qualification is to be secured. Those are the primary, the fundamental portions of this bill, and I think when we enunciate as an Association that our desire is that all the laws that are enacted for the regulation of pharmacy shall have qualification as their primary laws, we have done our duty as an Association.

MR. MENNINGER.—It seems to me we can expedite matters by taking up the various principles of this bill and passing upon them in the form of resolutions. I move that, in the opinion of this Association, the registration of pharmacists is desirable in the various States of the Union, and that such registration be based upon education.

MR. SMITH.—It seems to me the bill of the Committee is before the meeting, and it is necessary by resolution to postpone that report before another resolution can be taken up.

MR. MAISCH.—I will withdraw my motion to adopt the report.

MR. MENNINGER.—I will withdraw my proposition.

MR. TAYLOR.—I am of the opinion that Dr. Squibb's motion will cover the ground more completely than Prof. Procter's. I hope the question will be put in that form; whether qualification shall be considered the basis of a law to be adopted by this Association, and having settled that point, then registration merely as a means of determining qualification; so that the basis is whether qualification shall be adopted by the Association as the foundation of the law.

DR. SQUIBB.—Prof. Procter wants to discuss registration. I suppose that in his mind objections to registration occur as they do in mine; that is, that if we propose a law that makes a whole train of offices and office holders, we are simply establishing another political engine in each State. that will soon become corrupted to political ends. I feel strongly opposed to advising any scheme whereby fresh officers shall be created as a burden upon people already overtaxed, and because such a scheme must, sooner or later, become a political engine. Still, it is much easier to raise objections than it is to propose better plans; and I should be in favor of avoiding any particular way in which our objects are to be accomplished, provided we can assert that we believe the great difficulties that are now to be met in the practice of pharmacy are those which depend mainly,—not wholly,—on the want of qualification in those who pursue the art. We can enunciate that single principle, and let the legislators, whose business it is to make laws, whom we elect for that pur-

pose, say, "In order to secure qualification, we must make some law that will keep ignorant people out of pharmacy." Let them make the machinery; if they chose to make special offices let them do it, but don't let the responsibility be saddled on this Association of creating, all over the United States, a number of boards of registration, and a number of offices whereby the politicians may make their trade out of ours.

MR. PROCTER.—In England registration is being carried out very successfully. It is there conducted by gentlemen of the Pharmaceutical Society at London, which governs the whole of Great Britain in this matter. We need not point out how this registration is to be conducted; whether it shall be done by pharmaceutical societies, or colleges, after a while, when they become sufficiently numerous, or whether it be done by the State. Dr. Squibb assumes it would be done by the Governors, because this bill so provides. If it is thought that registration would be onerous, and not accomplish anything and is not a fit means to effect this selection that we want to carry out,—that is, to separate those that are qualified from those that are unqualified, don't adopt it; but if it is the true doctrine let us adopt it. As regards the difficulties, I agree with the Doctor. The reason I brought up registration first was because it is the first thing in the bill. The first thing they say is, no one shall practice that is not registered; so registration must be settled before we consider the bill.

MR. COLCORD.—Dr. Squibb has enunciated the doctrine that we all believe in, and if he will put that in form, it will be satisfactory.

DR. SQUIBB.—I cannot do that while the present bill is before the Association.

MR. CODDINGTON.—The idea I keep before my mind is, if we do not ourselves propose this law, much worse laws will be enacted for us, and as regards the objection to making officers, we might better have the regulation of that ourselves than to have those officers forced upon us and the people, probably much more objectionable than in this present law. There must necessarily be some machinery to carry out the provisions of any law, and I don't see how it could be any more simple or impartial than in the provisions of the law as it has been proposed. The law has been framed so as to meet any objection that it was solely for the interest of the druggists; it appears to be framed as much for the benefit of the community as for the druggists. I do not see any force to the objection in regard to political machinery, except that to carry out any law there must be some machinery, and that machinery is always liable to corruption.

MR. WRIGHT.—As to the question of qualification being the sense of the Association, the appointment of the Committee is evidence that that is what the Association is aiming at, and in the first two lines of the preamble it says: "*Whereas, The safety and welfare of the public is endangered by the sale of poisons by unqualified or ignorant persons,*" etc. The whole thing starts with that idea. Then registration comes in as a means of

securing that qualification that we require. I do not see why we cannot take a vote on Mr. Procter's motion : Is registration the best means, in our opinion, of securing this requisite qualification ?

MR. MAISCH.—In my opinion, and in the opinion of your Committee who framed the law, this bill imposes burdens upon the apothecary, and upon the practising assistant pharmacist—burdens which are not required of them now ; but those burdens are, and were intended to be, for the benefit of the public. Directly the apothecary is not benefitted by it ; the one ultimately, nay directly, to be benefitted is the public. If you, gentlemen, are willing as educated pharmacists to benefit the public, we all agree on that basis certainly.

MR. SHINN.—I think it is obvious that all the members of this Association do not request legislation on this subject, but it is because the community has forced it upon them, and in order to guide such legislation when it is forced upon the different States this law has been proposed. It has been drawn up by the Committee. I would suggest in the second line of the printed copy, before the preamble, that, "if approved, offered to the Legislatures of the several States of the Union for adoption," be stricken out, and that this be substituted : "in case legislation is forced upon us, this to be offered as a guide for such legislation ; then the question is for this convention, whether they approve of the general plan of this law. Prof. Procter's motion is getting at the first principle involved.

MR. MERRELL.—I don't think it is expedient to have any bill of this kind that requires a registration in that sense. I think the whole thing, if adopted by the States, would become inoperative ; not only so, but it would become oppressive. It does very well for our large, cities where the business of the pharmacist is somewhat organized, where physicians generally send their prescriptions to the pharmacist to be filled ; but when we come to its application through our wide country, we shall find that it will not apply. We cannot apply a law upon that basis without becoming oppressive to the apothecary, or the seller of medicines, if you choose to call him so, for we have a great many such that are not apothecaries, and we cannot reach the thing on that ground. In regard to poisons, we cannot enact a law that no clerk in an apothecary's store shall be allowed to deal out ten cents worth of corrosive sublimate to kill bed-bugs unless he has served four years apprenticeship. We cannot make any such law.

MR. MAISCH.—We ought to have it to prevent those who don't know any thing about corrosive sublimate from dealing in it.

MR. MERRELL.—We want to recommend a law that the legislature hold the principal of every shop responsible for the acts of his apprentices and employees, and if they deal out poisons or don't put up prescriptions properly, and injure people, make the principal responsible, unless

he can show proper reason why he is not to blame. If we make a law for registration to regulate the matter through the country, it will fall as a dead letter, and never be executed, and just as far as it is executed, it will be burdensome and oppressive. We want to hold every apothecary responsible; to make them employ properly qualified and educated clerks, and allow no physician's prescriptions to be filled by unqualified persons, and when we have gone that far, we have gone as far as we can, because educated apothecaries make just about as many blunders in filling prescriptions as any body else. The fault of that is not with us; we ought to go back and attack the physicians and make them write better. Three quarters of the poisons that go out to kill folks arise from the blundering manner in which the prescriptions are written by the doctors. We must go back and reach them to stop the evil; to have the apothecaries educated is desirable, but we cannot reach this thing by this kind of legislation.

MR. EBERT.—I should like to ask what the expression "qualification" means? How are our courts to judge when a man is qualified or not to deal out corrosive sublimate, if you have no standard to go by?

MR. MERRELL.—All those things are subject to common law, and we had better leave them there.

MR. HAVILAND.—I will move that all the clauses in regard to registration be stricken out.

This motion was not seconded.

DR. SQUIBB.—It is impossible in the hurry of the meeting to draft anything that expresses clearly and in the best manner the ideas that Prof. Procter and myself have on this subject, but this will roughly express what may be afterwards smoothed into rather better form.

Resolved, That the draft of a law presented by the Committee of the Association appointed for that purpose, be incorporated in the minutes of the Association as one scheme whereby the objects of the Association may be attained; and that as such it is placed on record for the use of the legislatures of the different States of the Union, if they please to consult it; but, it is also

Resolved, That the difficulties of constructing a proper form of law adapted to general use as such, and the impossibility of obtaining harmonious action in our own body, is so apparent, that we are satisfied with enunciating the broad principle which, in our judgment, underlies most of the accidents and abuses which we aim to correct.

Resolved, That this principle is, that lack of qualification in those who prepare and dispense medicinal substances is the chief cause of the accidents and difficulties which occur, and that proper qualification and education should be secured by law.

That needs a little putting into form, but I think that those two last points are what we aim at. We aim to express our opinion that these

accidents and troubles which are occurring all over the United States, and which we are now morally called upon to act upon in some shape, arise from a lack of qualification, and then, after expressing such an opinion, we express our opinion that such qualification and education should be secured by law.

MR. COLCORD.—That is just my idea.

MR. PROCTER.—If by making the printed law part of the minutes we consider that the principles are all stated, that would be sufficient, because the principles we profess are in the bill, only they are mixed up with so much other matter that it is difficult to get at them.

DR. SQUIBB.—The object of the resolution is to put this law on record as a form whereby such legislation may be guided, if in the wisdom of legislatures it should seem a proper form.

MR. PROCTER.—I should be pleased if, in addition to that, there had been a series of resolutions touching each of these points—something like this, for instance. “*Resolved*, That it is the deliberate opinion of this body that, if a law for the regulation of pharmacy should be required in any State, such law should be founded on the well-defined qualification of all who dispense medicines and sell poisons.”

2. “*Resolved*, That as a prominent means of determining qualification, some form of registration should be adopted and carried out by the incorporated pharmaceutical bodies of the State under the authority of the Governor.”

DR. SQUIBB.—That is merely adding detail to this last phrase that “proper qualification and education should be secured by law.” This qualification may be secured by law in any way that it is deemed wise to do so. Those are simple elaborations of this principle that qualification is to be secured.

THE PRESIDENT.—The view of this resolution is to accept this law as the report of the Committee, but not adopt it as the sense of the Association?

DR. SQUIBB.—If the principles involved in this sketch will now suit the majority of those present, it will be worth while to go over it with a little more care, and adopt or reject it at a future meeting. This may be passed, if the Association choose, now. All the principles are involved here; all that I aim at and Prof. Procter aims at. We may get a little more elaboration, but if some such thing will suit the Association I think we should save time by adjourning, and then have this ready this afternoon to lay before the Association. I move that this subject of the law to regulate pharmacy be postponed until the afternoon session to-day.

The resolution to postpone until the afternoon session was seconded and adopted.

Mr. Shinn, on behalf of the Committee, read the following report:

The Committee appointed to bring before the Association the subjects referred to in the President's address, respectfully report the following as claiming attention :

The increase of the salary of the Permanent Secretary and of the Treasurer, so as to bear something like a just relation to the labors devolving upon them.

The tendering by this Association to the Decennial Pharmacopœial Convention, to be held in Washington next May, of any contribution toward the revision of the Pharmacopœia that may be submitted to this meeting and published in its Proceedings.

Encouraging all incorporate Colleges of Pharmacy to participate in said convention.

An expression of sentiment favorable to "widening the scope of the pharmacopœia, so as in itself to meet more completely the manifold wants of the pharmacist."

Allowing the Committee on the Drug Market to make up a statistical report in time for publication in the Proceedings.

The appointment of a Committee to give information in regard to a "revision of the tariff on drugs" to the officers of the government.

The consideration of the draft of the proposed "pharmacy and poison act," and, in event of its approval by this Association, the appointment of a large Committee, representing each State, to have it introduced and discussed at the several capitals, in a meeting of druggists and pharmacists, and in consultation with leading medical organizations.

JAMES T. SHINN,
EDWARD L. MILHAU,
F. MAHLA.

Committee.

To carry out these propositions the Committee had drawn up a series of resolutions which were brought forward seriatim.

1. *Resolved*, That, in view of the arduous labors involved, the salary of the Permanent Secretary for the ensuing year be increased to \$400, and that of the Treasurer to \$200.

MR. MAISCH.—I should like to know where the Association will get the money from.

MR. COLCORD.—I second that motion with a great deal of pleasure. I am unwilling that the Secretary should do duty for us without his being paid for it. His time is as valuable to him as mine is to me, and if we have not the money in the Association, the best way is to raise it, even if by another contribution on the life members. I think the money will come if you vote the appropriation to these officers. It is due to them.

MR. SHINN.—The increase would be 50 cents apiece for each member.

DR. SQUIBB.—I was forestalled in seconding that motion, which I heartily approve of, and will now propose that this be rendered a perma-

ment thing. The resolution applies to this year. I would rather see that resolution made applicable, not to this year only, but to the future, and allow us from time to time, as the labor becomes more arduous, to add to it. I think there will be no difficulty in raising the money. It is proper to look ahead, but I think the Association will take that matter in hand. I have been an advocate for an increase in the annual contribution to this Association, and think that those gentlemen who come here and take the interest they do in the Association can afford to pay \$5.00, especially when they get \$2.50 returned to them in the volume of Proceedings; if not, it is a poor compliment to our importance as a National Association.

MR. SHINN.—The Committee confined it to this year for the purpose of not binding ourselves to any sum, but that it might be decreased or increased next year. It is for the Convention to say.

Mr. Tufts moved that the resolution be amended by striking out the words "for the ensuing year;" this motion was not seconded.

Mr. Massot moved, which was seconded, to amend, by substituting 500 in place of 400 dollars.

DR. SQUIBB.—I think if we refer a matter of this kind to a Committee we ought to trust them; if they come forward and report a sum it is better to adopt their report. They have considered this matter judiciously and taken all things into consideration, which we cannot do as an Association. Let us adopt their report, and if next year it seems to another Committee, or to another President, that the salary requires raising again, let it be recommended, and I hope we shall be found as ready to respond to it as we are now, because there seems to be a very unanimous opinion in regard to it. Therefore, I oppose the amendment and support the Committee the Association has appointed.

MR. SHINN.—The Committee were assured that \$500 is not too much, but although they do not generally approve of compromises, they thought in this matter they had better go rather gradually; for that reason we say for this present year.

The motion of Mr. Massot was lost, by a vote of 17 yeas to 29 nays; and the resolution as reported by the Committee was then adopted.

The Committee further offered the following:

Resolved, That the Secretary be directed to forward to the President of the Decennial Pharmacopœia Convention, in May next, a printed copy of the Proceedings of this Convention.

DR. SQUIBB.—I second that resolution for the purpose of opening it for discussion, and I would like to say on that subject that I am opposed

to that resolution as it stands, and to any resolution of the kind, because the contributions to the Decennial Convention spread over all our proceedings. This Committee, of which I was the Chairman, commenced its labors eight years ago, and the first papers referred to in that report are scattered back through the Proceedings of several years, three or four years certainly; therefore, to forward one volume would not cover the ground. I feel sure that that Convention will not overlook the labors of this Association any more than they will overlook any other source of information, and I think it is gratuitous to offer any resolution of the kind. The proceedings are published; all the materials are at their hands, and they will make use of it without any action on our part. We can have no right of official communication with this Convention, or its Committee, but it is rather a bad compliment to suppose they would overlook us if we did not pass some such resolution.

MR. SHINN.—I think the President in making the suggestion, thought it would be at least an act of courtesy for this convention to send a copy to them. We don't say they shall adopt these views at all, but it would give them some information, and would be an act of courtesy on the part of the Association. It is a matter of very little moment, as they will get it anyhow.

THE PRESIDENT.—It seems to me the suggestion of the Committee, as well as the objection, might be met by the Secretary of this Association tendering to the Committee of Revision whatever information is at his disposal.

DR. SQUIBB.—I merely think it is unnecessary. I do not oppose it as being bad or objectionable in any way, but simply as unnecessary and taking up time, as the Convention would feel bound to reply to it. It is simply an act of courtesy and does not much grease the wheels of the intercourse.

MR. WIEGAND.—Many of the members of the Association are members of other Associations that have a status in that Convention, and therefore it is not necessary that we should make this tender.

MR. PROCTER.—I think it would be more dignified for us not to pass the resolution.

The resolution was not carried.

The following resolution, offered by the same Committee, was unanimously carried:

Resolved, That this Association earnestly recommends every incorporated College of Pharmacy in the United States to send delegates to the next Decennial Convention, prepared to present the views of their respective Colleges to the revision of the Pharmacopœia.

The same Committee offered the following resolution:

Resolved, That, while it is to be regretted that the Committee on the

Drug Market have failed to present a report for the consideration of the Association, the rules be suspended so far as to allow it to prepare a statistical table (involving no opinion) for publication in the Proceedings.

MR. SHINN.—It was thought, as there has been a statistical table in almost every volume, it would make a break in the series if it was omitted from this one, and as statistics do not involve any opinion, it was believed the Association would be willing to allow them to present such a table.

DR. SQUIBB.—The statistics that have appeared in our volumes so far have often discredited each other; that is to say, the last statistician disputed the statistics of the next one before him, and I fear there might be some such discrepancy in this case; and therefore the statistics are so far valueless. The principle I aim at is to free the editor of the Proceedings from any waiting for the report. I think it is a bad principle for us to incorporate in our Proceedings anything which has not been presented at our meetings. I therefore oppose the resolution of the Committee.

MR. SHINN.—It is a very correct principle, but was waived last year in regard to the Chairman of the Committee on Specimens.

DR. SQUIBB.—That is a legitimate exception, because the Committee on Specimens is often unable, from the number it has to go over, to present a report; and as that is a report which involves only an opinion of a set of specimens, and not any thing that might have been done before, it is different. Here are Chairmen of Committees who postpone their labors to so late a time that they cannot get them accomplished. I know I have suffered under that rule myself, and therefore feel privileged to say that other people ought to suffer likewise.

MR. PROCTER.—I agree with Dr. Squibb. I think we had better not give any such liberty.

MR. WIEGAND.—I would like to sustain the views of Prof. Procter and Dr. Squibb. One of the greatest troubles the Executive Committee and the Editor have to contend with all along has been to get the things to print, while we had to take the odium of not bringing the book out as soon as it should come out.

The resolution was rejected.

Mr. Shinn read the next resolution from the same Committee, as follows:

Resolved, That a Committee be appointed by the President of this Association to confer with the Government in regard to the tariff on drugs, should occasion for it arise.

MR. COLCORD.—I second that motion for the purpose of opposing it. That question of the tariff on drugs is a political thing. We shall have but very little influence upon it, and could never get two members of the Association to agree on the same kind of a tariff. It will only make a

division in our Association without any increased benefit to the community or the drug trade, and I therefore oppose it on that ground. We shall have no influence, and it is very easy for the Congressional Committee to consult the prominent members of the Association without appointing any such Committee.

DR. SQUIBB.—I agree with Mr. Colcord. We have no service in that way that we can do them. If they desire our views, we have heretofore passed resolutions that the President and Officers are always accessible to the officers of the Government, of Congress and of the Legislatures for any such advice as they may need. That is sufficient, I think, and I should be sorry to see anything more done.

MR. SHINN.—I am of the same opinion.

THE PRESIDENT.—I have received a note from Mr. Fuller, who was elected Chairman of the Committee on the Drug Market, wherein he says: "In this connection I would suggest that a Committee on Tariff be appointed to represent the interests of the American Pharmaceutical Association at the next session of Congress. This Committee might be authorized to collect statistics of foreign markets, etc."

MR. HAVILAND.—I do not agree with Dr. Squibb and Mr. Colcord. I know our legislators are anxious to get information upon this very subject whenever they have had it before them; but they only go to private individuals; if we have a Committee of this Association,—a large and influential body,—to go and represent the thing properly, we shall do away with a great many of the inequalities in the tariff on drugs that are now existing.

The resolution was rejected.

Mr. Shinn presented the last resolution prepared by the Committee, as follows:

Resolved, That a Committee be appointed, representing each State, to present to the several legislatures a copy of the "Pharmacy and Poison Act," as adopted by this Association, as a guide to legislation, in case such should be insisted on by the community.

MR. SHINN.—It would be premature to take action on this; there has been no draft of a law adopted.

MR. COLCORD.—If we pass that, or any thing else, I am opposed to presenting it to any legislature.

The resolution was withdrawn.

The President read a letter from Mr. H. W. Fuller, declining to serve as Chairman of the Committee on the Drug Market.

DR. SQUIBB.—I move that Mr. Fuller's declination of the office be accepted and the matter be referred to the Committee on Nominations to supply another name in his stead.

The resolution was, on motion, adopted.

The Business Committee called for the report of the Committee on Photographs, appointed at the last Annual Meeting.

MR. BEDFORD.—Mr. Lincoln desired me to make a verbal statement at an early session of the meeting. We have collected in all about one hundred photographs of members. It is very desirable to obtain a full collection, and I will simply at this time request those members who may have photographs with them to hand them to Mr. Shinn or myself during the progress of this meeting.

The Secretary read invitations from Messrs. Hovey & Heffron, to visit their art gallery, and from Mr. D. B. Shipman, to visit his white lead works. The invitations were, on motion, accepted, and the Secretary directed to suitably acknowledge them.

The Executive Committee presented the names of the following applicants for membership in the American Pharmaceutical Association, they having been duly vouched for in compliance with the Constitution :

Chas. Wm. Gracely, of Chicago, Ill.	S. H. Douglass, Ann Arbor, Mich.
John F. Street, Bay City, Mich.	Horace Burrough, Baltimore, Md.
Jos. E. Anderson, Mare Island, Cal.	J. R. Chapman, Detroit, Mich.

The President appointed Messrs. Edward C. Jones and William C. Bakes tellers, who reported the unanimous election of the candidates.

On motion of Dr. Squibb, the Association now adjourned until three o'clock this afternoon.

Fifth Session—Thursday Afternoon, Sept. 9th.

The Association met pursuant to adjournment, President E. H. Sargent in the Chair. The minutes of the previous session were read and approved.

It was then moved by Dr. Squibb, that in the reference of his report on the Pharmacopœia to the Publishing Committee for publication in the Proceedings, the report be prefaced by the distinct statement that the Association, in publishing this report, does not endorse the judgment of the reporter in his recommendation to dismiss so many articles, or his accuracy in the criticisms and objections to the processes.

DR. SQUIBB.—If that be printed in front of the report as coming from

me, as the author of the report, it will disarm any inference that the Association has taken the ground of discrediting me, and also meet the other objection.

MR. PROCTER.—There was nothing said about the accuracy of the criticisms. The only question was in reference to dismissing so many articles from the pharmacopœia. The latter part of that resolution should be stricken off.

DR. SQUIBB.—I should prefer to have it go in for the reasons I gave ; that it is not necessary for the Association to endorse the accuracy of any criticisms upon processes in the pharmacopœia. This will obviate the necessity of any reference to the paragraph which says that the Association does not endorse the report. If it be the sense of the Association to strike out these last few words, I am perfectly willing to do it.

THE PRESIDENT.—I would like to suggest that perhaps the Association may endorse all that was said.

DR. SQUIBB.—I think the sense of the Association was that it did not ; that was my clear impression. I don't see how they could endorse it, because they can't appreciate it. For instance, I advise the omission of mentha piperita ; that perhaps appears pretty sweeping, but I merely advise that the duplicates be left out ; that the herbs itself be omitted, but the oil be left for all the various uses. I could not take time to explain all these things, and the Association would be blind if it endorsed all these opinions.

MR. PROCTER.—You leave out peppermint ; how would you make peppermint water ?

DR. SQUIBB.—Out of peppermint oil.

MR. PROCTER.—The process requires the herb.

DR. SQUIBB.—The present water requires the herb, but whether judiciously so I doubt. I think the oil should be used, as we make all the others of the oils, and use the herb in but few, in only two, I think.

MR. PROCTER.—In nearly all of them.

DR. SQUIBB.—I had forgotten that.

MR. TAYLOR.—I think we ought to say the Association is not responsible for the views expressed in this paper.

The resolution was then modified and adopted in the following form :

Moved by Dr. Squibb, that in the reference of his report on the Pharmacopœia to the Executive Committee for publication in the Proceedings, the report be prefaced by the distinct statement that the Association, in publishing this report, does not endorse the judgment of the reporter in his recommendation to dismiss so many articles.

Dr. Squibb stated that the resolutions offered by him at the previous session had been modified so as to read as follows :

1. *Resolved*, That the draft of a law to regulate the practice of Pharmacy, proposed by the Committee of the Association appointed for that purpose, be accepted and published in the Proceedings of the Association, as being one method whereby the objects of this body in regard to that subject might be attempted, and that as a method which embraces many useful details, arranged with great care and labor, it is recorded and published as well adapted to be useful to the Legislatures of the different States of the Union whenever they may see fit to respond to the earnest desire and call of this Association and of the community at large for enactments upon this subject.

2. *Resolved*, That the difficulties of constructing a form of a law proper to be endorsed and recommended by this Association for general application in all the States, are such that we must be satisfied with enunciating the broad principles which in our judgment should direct all legislation upon this important subject.

3. *Resolved*, That we see with alarm and regret the rapid increase in the number of accidents which occur from mistakes and mismanagement in dispensing medicinal substances, and that we earnestly desire to see these casualties checked and controlled.

4. *Resolved*, That we regard the ignorance and irresponsibility of many who engage in the practice of Pharmacy without proper qualification as the principal cause of such casualties.

5. *Resolved*, That a proper degree of education and qualification should be secured by law, and that all proper measures for educating and qualifying persons for duties so important should receive more encouragement and protection from the Law than they have hitherto done.

6. *Resolved*, That the report of the Committee embracing the proposed draft of a law, of the action had in this Association upon that report, and of these resolutions, be printed in pamphlet form, and that ten copies be sent to the Governors of the different States of the United States.

The resolutions were taken up seriatim, and, on motion, the first was adopted.

The second resolution was then read, when Mr. Wright, of New York, said :

I think we may go a good deal further than that resolution calls for. The sense of the Association for the two previous meetings appears to have been to not only get up a law, but to recommend it to the Legislatures. There was a Committee appointed at the meeting of 1867, which made a report on legislation regulating the practice of pharmacy, and they appended to their report the following resolution :

Mr. Wright read the resolution which was before the Sixteenth Annual Meeting, and continued :

That resolution was adopted by the Association, that the law should, if approved, be recommended to the legislatures for adoption. Now, in this resolution of Dr. Squibb's the whole question of registration will be ignored. Your Committee looked upon qualification secured by registration as the one essential point ; if any one else has any thing better to offer by which qualification can be secured, your Committee would be only too glad to hear from him. There is no doubt that the legislatures of every State, when this bill is presented to them, if it should be approved by the Association, will adapt it to their local circumstances ; it is expected that they will. We cannot recommend a law that will do exactly for every State, but the legislatures of the States will vary the law coming as near to ours as they can, if they should consider that ours was in the main a wise one. We have not the slightest power or authority with the Legislatures ; we only say we shall be satisfied with such a law if they pass it.

THE PRESIDENT.—It would seem to me the scope of Dr. Squibb's resolutions covers the ground.

MR. WRIGHT.—Dr. Squibb appears to think the Association is so inharmonious that they cannot come to an understanding about the law. Some points of this law have not been discussed by the Association, it has been extinguished. Your Committee have expended a great deal of labor upon it, and there is no objection made to its points at all, but it is just quietly pushed on the shelf. Legislation appears to be practical in almost all other countries. Canada is about passing a law which the Secretary has upon his table.

MR. COLCORD.—I think the Association has this subject before it in a concise form, and that the Association is perfectly competent to deal with it in any direction they see fit. For that reason, I think the resolutions are perfectly in place at this time, and that that is the proper way to deal with it. I think, so far from there being any want of harmony in the Association on the subject, that the members will not recommend that law while they are willing to endorse it in this shape as the sense of the Association.

MR. WRIGHT.—Why not see what the clauses of the law are ?

MR. COLCORD.—Because it would take a fortnight, and we have only half a day.

MR. WRIGHT.—I don't think it would.

MR. COLCORD.—That is where you and I differ.

The second and third resolutions were then separately adopted. After the fourth resolution was read, Mr. Merrell said :

I very much doubt the truth of that. So far as my observation

has gone, more of these casualties and accidents happen from carelessness and inattention of those who would receive a proper certificate or diploma, than from ignorance and want of education. If you trace up these various accidents that occur, you will find the majority of them do not come from the want of education. I am not opposed to the education of pharmacists by any means. I think the whole profession ought to be elevated, but still this is shouldering upon apprentices and those that are considered uneducated those errors and mistakes, three-fourths of which come from men who would receive their diplomas and certificates. In a practice of ten years as a practical pharmacist, in a retail shop, the only accidents that I ever had occur were from clerks that would very readily receive their certificates of qualification from any such board as you propose. It was not from the ignorance of the clerks, but these things occurred from inattention, carelessness, if you please, and a great many of them, in filling the prescriptions of physicians, from the carelessness and inattention of the physicians themselves. I don't believe we can regulate this thing by law, any more than by general laws, punishing with proper penalties the authors of these mistakes; punishing the principals, as we do with all other professions, for the errors of their employees. In every other department the principal becomes responsible for the acts of his agents, and it should be so here, and it is in a great measure. We hear of prosecutions and recovering of damages from principals in consequence of the mistakes and errors of those whom they employ, and that is where the law must reach. By this qualification and registration, we only increase legislation and the number of offices, and we do no good, or very little good in the way of securing what we are seeking. We are going to work in the wrong direction, in my estimation, and shall not by any of these legal enactments attain the object we seek. I doubt whether these accidents are increasing. It is just like the murders and suicides and other things that are taking place through the country; everybody says these are increasing very much; that crime is increasing very much. I don't believe it is so; it is because the newspapers, for the sake of sensation, pick up and circulate and publish every thing of the kind in our broad country; when it took three days to travel fifty miles we didn't have all these particulars, but now they are heralded from one part of the country to the other, and we have a great chapter of accidents. I don't believe the world is growing worse; I believe crime and these accidents are diminishing; that we have less crime and accidents than we used to have; it is because we hear of them more, and they are seized by the newspapers and published and everybody learns about them. These accidents are picked up and published from Dan to Beersheba, from one end of the country to the other, and it seems as if we had a great many accidents in the pharmaceutical profession. I don't believe it is the fact; I don't believe we have any more than we would have if we made the strictest

possible law. They do not arise from that source. We must hold individuals responsible for their acts, and the principals responsible for their agents, and that is the only point we can attain to.

The fourth and fifth resolutions were then adopted, and the discussion opened on the sixth resolution.

MR. PROCTER.—I would suggest whether that is the best point to send them ; whether the Governor is better than the heads of the legislature.

MR. MAISCH.—I would suggest, if Dr. Squibb has no objection, to alter, so as to read "and speakers of the legislatures."

MR. GARRIGUES.—I don't see the propriety of printing these separately ; why not print them together in a pamphlet ?

DR. SQUIBB.—Separately from the Proceedings.

MR. GARRIGUES.—It carries the idea that they shall be printed in two separate pamphlets.

DR. SQUIBB.—It means separate from the body of the Proceedings, so as not to have to send them in the large volume.

The Secretary suggested to strike out the word "separately;" the resolution would then convey the idea intended.

MR. DOUGLAS.—It strikes me the Governors attention should be called to this question, and they will recommend it to the legislatures for their action ; the only source through which it can go to the legislatures is through the Governors.

MR. PROCTER.—Any member of either house in Pennsylvania may originate bills.

MR. DOUGLAS.—Still, it goes better through the Governor ; it may originate in the house, of course, but it goes better through the Governor.

MR. SHINN.—I would suggest that both be named,—the Governors and the speakers. I think it would be an act of courtesy to send the Governors one, as they have the power of vetoing any bill that might be passed.

MR. MENNINGER.—In some States suggestions go from the Governor to the legislature, while in other States no such message is made ; so we meet both cases by sending to both.

The sixth resolution was then adopted in the following modified form :

Resolved, That the report of the Committee embracing the proposed draft of a law, of the action had in this Association upon that report and of these resolutions be printed in pamphlet form, and that ten copies for each State be sent to the Governors and the speakers of the legislatures of the different States of the United States.

The Secretary then laid before the Association the draft of a law proposed for Canada, and said :

As a matter of information, because it is now merely a matter of information, I desire to inform the Association that this morning I received from the Montreal Chemists' Association a draft of a law which they propose to recommend for enactment in Canada. This draft of the law is in many respects similar, almost as if it was a copy of our draft. The law is for the purpose of incorporating the Quebec College of Pharmacy, and it gives that College power to examine apprentices, clerks and those who intend to open stores, and license them for conducting the business of pharmacists; provides for registration, and prescribes penalties for the various offences against it. The law was, as I stated, received to-day.

DR. SQUIBB.—That then appears to be a copy of the English law, transferred to Canada, because those are the main points of the English law, and ours are the main points of the English law, as far as could be adapted to our own uses here; so that both coming from the same source, namely, the English law, would be very similar.

The Business Committee reported on the suggestions contained in the report on the Progress of Pharmacy as follows:

The Business Committee, to whom the report on the Progress of Pharmacy was referred for consideration, report that the suggestions of Dr. Hoffmann appear to the Committee to be worthy of the careful consideration of the Association, and would therefore offer the following resolutions, not to be adopted at present, but to lie over until the next annual meeting of the Association.

Resolved, That the Committee on the Progress of Pharmacy shall consist of three members, who shall be elected every three years, to serve for a period of three years; and that the subject upon which they report shall be divided into three parts, one part of which shall be reported upon by each member of the Committee.

Resolved, That the report of this Committee, in addition to being printed in the Proceedings of the Association, shall be published separately, in book form.

There being no objection raised to the course proposed, the resolutions lie over until the next annual meeting.

The Committee appointed to consider the time and place of our next annual meeting being called upon, the Chairman, Mr. Haviland, reported verbally as follows:

We have taken the matter into consideration and have decided to report that our next annual meeting take place on the second Tuesday of September next, at Saratoga Springs.

THE PRESIDENT.—It is necessary for the Association to endorse the report of the Committee.

MR. MAISCH.—I should like to have Mr. Haviland state some of the reasons that have induced the Committee to depart from the usual course of meeting in large cities, and recommend going to a small place.

MR. HAVILAND.—There are many little matters that have grown up with the growth of the Association that many members have been desirous to change. One was that this Association did not wish to feel under obligation to wait for an invitation and go wherever they were invited, but to go where they pleased. A custom has grown up of electing a Chairman from the place where we went. That precluded the election of many men in places where we could not meet, that we would like to have elected. Another reason was that many places were not able to receive us in the style in which many of the large cities have received us, and we would like to go to those places and meet there for our convenience and for the good of the locality. There were many other reasons that entered into the consideration, which perhaps it is not necessary to state here.

MR. PROCTER.—I would ask whether the report of that Committee was to be final, or whether it was a subject for consideration.

MR. HAVILAND.—It was subject to the decision of the meeting.

MR. TUFTS.—I have just received a note from Mr. Hancock, of Baltimore, in which he says, "I trust that when the Association adjourns it will be to meet next year in this city, and feel confident that the pharmacists of Baltimore will do all in their power to make the meeting pleasant." It will be recollected that at the meeting last year, Prof. Moore, in behalf of the pharmacists of Baltimore, invited the Association to meet there next year.

MR. COLCORD.—The Committee recommend Saratoga Springs for our next place of meeting. I rise to make a motion that when we adjourn we adjourn to meet there. What I have to say is that it would be better for the Association to adjourn to meet where it would like to, instead of accepting these invitations. Not that we should avoid receiving or reject any invitations, but Saratoga is a place eminently fit for us to meet. There are large hotels, with ample accommodations, good halls, and we can meet together very readily. There are very few pharmacists that live there, and I would like to see the Association try a place of meeting like that, where all of us would be strangers, instead of taking a large city where many of us are local, and where we have to be feasted and taken great care of. I hope when we adjourn we shall adjourn to meet there.

MR. PROCTER.—I hope we will not adjourn to meet there. I think as we have met this time north, the next time we should meet further south. We have an invitation to visit Baltimore from the trustees of the College of Pharmacy, and there has been a sort of tacit understanding that that would be the next place of meeting. Of course it is always subject

to the action of the meeting. The argument against large cities,—the suggestion that they are not proper places of meeting —

MR. COLCORD.—I did not say that. I am in favor of small places, where there are ample accommodations and a small number of pharmacists. I would like to try such a place once, and think it would be for the advantage of the Association.

MR. PROCTER.—I should rather meet in Richmond than Saratoga Springs.

MR. MENNINGER.—One motive which actuated the Committee in suggesting a small place was the one the Chairman covertly alluded to, and I will allude to it again ; it is that of entailing a considerable expense upon the resident members at the place of meeting. We all know that it costs the local members in New York, Philadelphia or Chicago a round sum of one or two thousand dollars out of their pockets,—a special tax—to receive the Association. If this meeting is held at a small place, members have no expectation of being thus received by the local members, nor will the local members feel that any such expectation is had of them, they being few in number. As a Southerner I should oppose Richmond. I think we ought to select a point accessible to the greatest number of the members of the Association. I am sorry to say that this Association is but very thinly represented in the Southern States. Seven-eighths of our attendance is from the north of Mason and Dixon's line, and the convenience of the members, and the expense incurred in attending upon the meeting ought to be considered. We have not as many members from the East as we would like to have, and would have were it not for the great expense of travelling to so distant a point. I think Saratoga Springs is a more accessible place than Richmond for the majority of the members.

MR. BROWN.—There is another point in regard to Saratoga Springs, and that is in the election of the President of the Association. Under the present system it is known to the Association a year in advance who is to be President of the Association, and has been ever since its organization.

MR. EBERT.—I agree with Mr. Brown. I think it will have a good effect upon our organization to take it into small places. We have been following this routine of going from one large city to another, and electing one of its members President, just out of courtesy to the city where we meet. We ought to follow in the wake of the British Conference, which should be quite a pride to us, for we can say its organization was copied from ours. They make it a rule only to elect men that really stand high in science, and I think it would be well for the Association to adopt a similar course. I hope we will go to a small place, even to a place where there are no resident members, so as to break up this process of electing men from some large city simply because we meet there.

DR. SQUIBB.—The gentlemen seem to overlook that one of the prominent objects of the migratory character of this Association is to stimulate pharmacy in those points to which it annually or occasionally goes. The necessary stimulation of pharmacy involves a good many circumstances, among which are the exhibition of specimens and other local matters that could not be accomplished in a very small place. I fear that the disposition to go to Saratoga is rather one to accommodate the members in their vacation, than to accommodate the Association in its objects. A sojourn for a week at Saratoga would be very pleasant, and it would be pleasant to sojourn there in the absence of any members to receive us, because we should wander about and get the advantages of Saratoga without having appointments made for us, and should relieve any one of the necessity of entertaining us. I am desirous of seeing this expensive system broken up. In my section it falls very lightly upon each member; in some other sections the expense is not very heavy, individually, but where there are but few pharmacists, as in Detroit, it must be an onerous burden. It was not onerous to them, but their expense must have been very great. I should desire to go to a small place to see that broken up, and I think once well broken up it would not be apt to be reinstituted at once. I think we should get along just as well if we were more independent of the hospitalities of the place where we go. That would be an objection to going to Baltimore. There are but few members who are active, and the expense would fall very heavy upon them, because no city is willing to be outdone by another in the expense lavished on the Association when we meet with them. I would like to have the meeting where we can be accommodated by paying our own expenses and taking care of ourselves. I am not satisfied with Saratoga, however.

MR. HAVILAND.—One advantage of Saratoga is that the hotels are large, and the accommodations are ample for the purposes of the meeting. Another thing, the time we meet the fashionable season would be over there, and we should be comparatively uninfluenced by the surroundings that occur in July or August; then again, it is very accessible from all points.

MR. HAMBRIGHT.—Some of the gentlemen consider that this is to be an experiment,—holding the Association in a small place. We all know that meeting in any city, large or small, in the Northern States, will bring together the members from that section. If we want to try an experiment, let us go South, say to a city to which we have not as yet been invited—Richmond, or Charleston, or Savannah. I believe we will see some benefit derived from going to a place to which we have not been invited. Saratoga will not do. One of the gentlemen contends that they have large hotels, but he forgot to add large prices, which will be an objection to a great many. Let us go where we have not been invited. Let us not stay in the North; let us take a trip once into the Southern country, and see what benefit it will be there. I am quite sure the mem-

bers, instead of spending a week or two at Saratoga, will find more benefit secured to the Association and themselves in general by getting in the members of the South, for we have some few and may get more by going there, and it will be an experiment the result of which we have not yet seen ; but by making an experiment with Saratoga we know what it will do, and cannot really derive any benefit from it.

MR. HAVILAND.—There would probably be a considerable reduction in the price of board, it not being the fashionable season.

MR. BROWN.—The Committee suppose it is understood that they have received no invitation for the Association to meet in Saratoga.

MR. PROCTER.—I should be very glad indeed if the members could be induced to go to Baltimore, but if they cannot,—and there don't seem to be much disposition to go there,—I think it would be doing pharmacy in the South a great good if we were to agree to go to Richmond, and not only to agree to go there, but to go there; and after getting there, carry out the principles it is proposed to carry out in Saratoga, and insist upon paying the expenses of the Association. We can appoint a Local Secretary there ; there are several gentlemen in that city, any one of whom would be suitable for that position, and we can have it arranged so that the meeting could be carried out without the gentlemen there thinking it necessary to go to any expense.

MR. MAISCH.—The nearest residence of a Local Secretary would be Fredericksburg, I believe. We have no members in Richmond ; we have only two members in Virginia, Mr. Stabler, of Alexandria, and Cooke, of Fredericksburg.

MR. PROCTER.—That is a difficulty I did not anticipate, but I do not think it is very serious.

MR. WIEGAND.—I would like to ask whether it would be advisable for the majority of persons to visit Richmond at that season. I know some persons who cannot go into that section of the country until after heavy frosts ; whether that is peculiar to them, or their state of health, or whether the season is injurious to health generally, I don't know. I ask the question for information.

MR. PROCTER.—Any difficulty of that kind can be met by meeting earlier.

MR. MENNINGER.—As far as the sanitary condition of that region is concerned, I am satisfied it is equally as good as that in which we are at the present time. I think Virginia and North Carolina are in every respect as healthy as the North in the month of September. We never have any epidemic in that month, and have had but two epidemic fevers in those States within the last fifty years, and then, the belief is, they were brought there from the West India ports.

MR. MERRELL.—I think the gentleman confounds the general effect of climate with that of epidemics. The inhabitants of those countries enjoy

as good health and live as long lives as they do at the North; but it is not true generally that persons who are inhabitants of the Northern climate can go into those countries during that time of year. If we go to the South we must change our time of meeting back to May. The plan of going South is a very good one, but not if we keep up the time of meeting as it is now.

DR. SQUIBB.—I would throw out the suggestion that in May next the American Medical Association and the Convention for the revision of the Pharmacopœia meet in Washington, and it would be quite competent for us to meet there at the same time. The more of these Associations meet together in the same place, the better is usually the attendance. The British Association of Science and the Pharmaceutical Conference follow each other pretty closely. If we choose to change our time of meeting to May, and meet when the Convention on the revision of the Pharmacopœia meets, those delegates would form part of our Convention, and we should be there to see what is going on.

MR. HAVILAND.—I think that is a good suggestion, because the Colleges of Pharmacy are represented in that Convention.

On motion of Mr. Colcord, the subject was laid over until tomorrow morning.

The Business Committee stated that Dr. Weller was desirous of reading a paper on Weights and Measures. On motion, the Doctor was invited to read the paper. It was afterwards moved that the paper be referred for publication.

MR. MAISCH.—I would ask, before the vote is taken on that motion, are not the principles of this paper essentially the same as those in a report made by Alfred B. Taylor, if I remember correctly, ten or twelve years ago, and published in the Proceedings?

MR. TAYLOR.—They are exactly the same.

MR. MAISCH.—I am not conversant with the matter. The question in my mind is, is it necessary to reprint a paper unless it contains some new principles, or something new to warrant its publication?

MR. TAYLOR.—It might be referred and left to the Executive Committee. The Executive Committee have direction to publish such papers as they see fit.

MR. MAISCH.—That is true, but I thought I might perhaps get some information without putting the Executive Committee in that position.

MR. TAYLOR.—I think the Executive Committee is the proper authority to decide whether it shall be published or not.

The motion was carried.

MR. TAYLOR.—In connection with this subject of weights and measures, Mr. Wiegand has brought to my attention a proposition for a new system

of weights and measures by Mr. W. E. Dubois, of Philadelphia, Assistant Assayer in the U. S. Mint. There are some points of merit in it. It occupies three pages in a magazine, and perhaps it would be well to have it read.

MR. SHINN.—I would like to ask if it is a paper that was prepared to be read before this Association.

MR. TAYLOR.—It was not. Mr. Wiegand received a letter from Mr. Dubois, requesting him to bring it before the Association. It was printed in the Banker's Magazine or Statistical Register, for Sept. 1869.

MR. MAISCHE.—Would it not be better to simply record it and refer it? If there is merit in it, or some new principles, I have no objection to having it read.

MR. WIEGAND.—Mr. Taylor has brought the matter up because I did not feel able to explain the points. Its essential principles are so few that it would hardly require five minutes to express them, but still the subject of weights and measures is a matter of interest to the Association. The author of that paper, who has paid a great deal of attention to that topic, and familiarized himself with Taylor's report on the subject, supposed it would be a matter of interest to the Association, and therefore offered it to me to bring before the Association if it was the wish of the Association to hear it. It is not forced upon us but offered as something that might interest us. His proposition is to do away with troy weights and come down, as our British Pharmaceutical brethren have done, to the avoirdupois system, but instead of having the ounce, as we now have, of 437½ grains, he has ten. ounces to the pound, of 700 grains each.

MR. SHINN.—I would suggest that we go through with the regular business, and if we have time for any extra business, we will hear it read.

Professor Procter, Chairman of the last Committee on Queries, read the report of that Committee, as follows :

The Committee on Queries report the following list for the ensuing year, with the names of those who have accepted them for examination :

1. What is the medicinal value of the portion of Socotrine Aloes left undissolved by water? And does it contain Aloin in appreciable quantity?
Accepted by Louis Strehl, of Chicago.

2. What is the best, simple and practical method or arrangement for retaining the Ammonia strength of Carbonate of Ammonia in the dispensing bottle or jar?
Accepted by Ambrose Smith, of Phila.

3. Coffee in one or another form has been recommended as an anti-toxic, as a deodorant, and as a means of masking saline bitterness. To what extent are these qualities possessed by Coffee, and what conditions are most favorable to its action?

Accepted by D. L. Dyson, of Bloomington, Ill.

4. What is the mode of action of "Insect Powder," the flowers of *Pyrethrum caucasicum* or *roseum*, as an insecticide? And is there an American plant that possesses a like power?

Accepted by S. S. Garrigues, of Saginaw, Mich.

5. *Eupatorium perfoliatum*. An examination of its proximate principles, especially that to which its bitterness is due.

Accepted by Joseph Hirsh, of Chicago.

6. What is the easiest and most practicable method of isolating Glycyrrhizin; to what extent does it possess the power of masking bitterness; and what is its mode of action?

Accepted by Joseph Hirsh, of Chicago.

7. What is the best and most eligible liquid form for the preparation and administration of Guaiac Resin?

Accepted by James T. Shinn, of Phila.

8. The relation of Mannite to Glucose in composition is very close. Can Mannite be prepared artificially, and if so, how? And has it the same physiological properties?

Accepted by Joseph Hirsh, of Chicago.

9. What is the actual influence of Soap on the Resin of Scammony, and on the resinoid matter of Colocynth and Aloes in the compound extract of Colocynth when the whole are dissolved together in dilated alcohol, and is this influence favorable to the medicinal power and value of the preparation?

Accepted by Prof. G. F. H. Markoe, of Boston, Mass.

10. Is not the proportion of Acetic Acid used in the process of the U. S. P. for Acetic Extract of Colchicum, too large? And to what extent may it be reduced?

Accepted by Edward C. Jones, of Phila.

11. It has been proposed to substitute Glycerin for Sugar as a solvent and antiseptic in Fluid extracts. Does this ingredient in quantity effect their medicinal power in any way?

Accepted by W. J. M. Gordon, of Cincinnati.

12. Pepsin is valued for its medicinal power in connection with disordered digestion. What are the best sources of, and what is the most available process for the preparation of it for medicinal use and for the cuisine.

Accepted by S. Mason McCollin, of Phila.

13. The cold infusion of commercial Wild Cherry Bark sometimes varies considerably in color. Is this due to the time at which the bark is collected, or to what other cause?

Accepted by Joseph L. Lemberger, of Lebanon, Pa.

14. What are the arguments for and against a change of weights in the United States Pharmacopœia, and especially as regards the adoption of Avoirdupois or Metrical Weights by that authority?

Accepted by E. L. Milhau, of New York.

15. What is the present state of the Foreign Opium trade of the United States, and to what extent is it influenced, if at all, by the culture of the Poppy and the domestic production of Opium?

Accepted by P. W. Bedford, of N. Y.

16. An essay on Filtering Papers and Filters, with general remarks on the important branch of practical Pharmacy in which they are employed.

Accepted by Joseph Hirsh, of Chicago.

17. What is the true power of Camphor as an insecticide? Does it destroy insects already existing in clothing, or does it merely act as a preventive by its odor?

Accepted by Prof. G. F. H. Markoe, of Boston, Mass.

18. Does Cassia Marilandica contain a glucoside principle analogous to that found in Alexandria Senna, by Dragendorff & Kubley?

Accepted by Joel S. Orne, of Cambridgeport, Mass.

19. Gillenia trifoliata. What process will isolate its emetic principle and what are the characters of the latter?

Accepted by Albert E. Ebert, of Chicago.

20. What is the present condition of the Honey trade in the United States, domestic and foreign?

Accepted by C. F. Stacey, of Charlestown, Mass.

21. What is the best antidote and treatment for Poisoning by Cyanide of Potassium that can be kept ready and used promptly?

Accepted by Louis Strehl, of Chicago.

22. Peppermint is largely raised in Ohio, New York and Michigan, for distillation. What is the present state of this industry as regards extent of production and quality, especially in reference to improvements in purity, based on care in culture?

Accepted by Robert S. Drake, of Piqua, Ohio.

23. What is the most reliable process for obtaining the Tartrate of Potassa that will be ready and uniformly soluble?

Accepted by Edwin Mallinckrodt, of St. Louis, Mo.

24. It having been shown by Charles Bullock that Veratrum Viride contains no veratria, (the source of that alkaloid for commerce being the fruit of *Asagæa officinalis*), it is queried, does the veratria of commerce exist in Veratrum album, or has some other alkaloid been confounded with it?

Accepted by S. Mason McCollin, of Phila.

25. What is the best process for Assaying Opium, to determine its morphia strength, suited for adoption into the U. S. Pharmacopœia.

Accepted by Wm. Procter, Jr., of Phila.

QUERY 26th.—An Essay on *Abies Canadensis* and its products yielded to medicine and the arts. *Continued to William Procter, Jr., of Phila.*

QUERY 27th.—On the present sources of supply and the statistics of the indigenous drug trade of the United States.

Continued to C. Lewis Diehl, of Louisville, Ky.

QUERY 28th.—Soluble Pyrophosphate of Iron in scales is observed to become less soluble by keeping. What is the cause of this change, and how may the salt be obtained of constant solubility?

Continued to G. E. Jeannot, of Louisville, Ky.

QUERY 29th.—The fusing point of true butter of Cacao being near that of the temperature of the body, what is the influence of such additions as wax, tallow, &c., on its fusing point, and to what extent are such additions objectionable as irritants, if at all, in vaginal and urethral suppositories?

Continued to Charles L. Eberle, of Phila.

The report was referred to the Executive Committee for publication.

The Secretary laid before the Association a letter from Dr. C. Gilbert Wheeler, Professor of Chemistry in the Chicago Medical College, inviting the members to visit the Laboratory of Practical Chemistry attached to that Institution, situate at 1015 State Street. The invitation was, on motion, accepted, and the Secretary directed to convey to the Professor the thanks of the Association.

Professor G. F. H. Markoe read a paper in answer to Query No. 6, on testing commercial extracts and fluid extracts of conium.

DR. SQUIBB.—I would like to express a doubt in reference to that plan of testing for alkaloids in fluid extracts, as to the accuracy of that mode of testing. I am not sufficiently versed in the test, or in the use of it to criticise it properly, but I have heard Prof. Mayer, who is the author of the test, say he did not put confidence in that mode of ascertaining the value of those extracts. I think it is well that this doubt should go upon the record, in order that we may see, by further examination, whether it be well founded or not.

MR. MARKOE.—As all the samples were treated in precisely the same way and bore different degrees of dilution, it should have some relative if not absolute bearing on the strength. In the sample made by Dr. Squibb, the amount of dilution stated is hardly up to the truth, as it contained so much conia that it formed crystals of iodo-hydrargyrate of conia, and adhered to the flask and prevented dilution. Allen's extract gave not the slightest reaction.

DR. SQUIBB.—The doubt which suggests itself to me is, whether some reaction does not take place in the fluid extract which masks the alkaloid, or places it in conditions where it fails to respond. If fermentation should take place in the process of percolation, or anything of that kind, which might mask yet not destroy the alkaloid, and fail to make its reaction appear, that would be an inaccuracy. There may be some proportionate relations which this test may establish; I do not know the *pro* and *con* of that, but I know the risks under which such tests ought to be applied are very great, and the sensibilities are very great, but whether it is reliable, or what criticism it deserves, I am not prepared to say, but

I consider Prof. Mayer very competent authority on the subject, as he was the originator of that mode, and he distinctly told me he did not consider the test very reliable, and my impression is it was for some such reason as this I have given.

MR. MARKOW.—In the first part of the process, I followed Fresenius in the endeavor to isolate the conia and free it from other matters before applying the reagent. There was a wide difference in the physical appearance of the extracts tested. The sample made by myself and that made by Mr. Doliber, of Metcalf & Co., were very similar in appearance and density, and gave exactly the same strength; the others differed widely in appearance and principal properties.

MR. MAISCH.—As far as I am aware, from pharmaceutical and chemical literature, almost the only reliable test thus far discovered for such preparations, like extracts and fluid extracts, is the actual separation of the alkaloids, and that is connected with no difficulty at all now-a-days. The papers which have been written within the last two or three years by Dragendorff and by a number of others perfectly establish that fact beyond the slightest doubt; and Dragendorff, who has experimented more with alkaloids, and with different alkaloids, so far as I know, than perhaps any other pharmacist, goes so far as to say that the only way you have is to separate the alkaloids, and if there are more than one present you have to separate each; and it can be done, too.

Mr. A. B. Taylor read a paper by Mr. D. F. Dyson on oxalate of iron, which was referred for publication.

Mr. Eug. L. Massot read a volunteer paper by Mr. Theodore Fay, relating to the profession of pharmacy, which was likewise referred to the Executive Committee.

Mr. Van Sweringen presented and read a volunteer paper entitled "Pharmacy," which took the same course.

In answer to query 17, on the substitution of indigenous aromatics for cardamoms in officinal pharmaceutical preparations, the Secretary read a paper written by Mr. Joseph L. Lemberger, which was accompanied by samples of the preparations.

The Secretary also read two volunteer papers; one by Mr. P. C. Candidus, "On Compound Elixir of Taraxacum the best vehicle for Quinia;" the other by Mr. James T. King, "On the deposit in Tincture of Rhubarb." Both papers were referred to the Executive Committee.

Query 31, on masking the nauseous taste of Epsom salts, was answered by a paper accompanied by specimens, prepared by Mr. Isaac W. Smith.

Dr. Squibb then rose and said :

I have a preamble and resolution to offer, which require a good deal more courage than I possess. I hope the members present will make due allowance for any emotion I may have in reading them :

Whereas, It must be an object of this Association, in common with all others of similar character, to oppose what is wrong within the sphere of its action and influence, and

Whereas, The Constitution of the Association asserts that its objects are to elevate the standing, increase the knowledge, oppose the adulterations, and suppress the empiricisms of Pharmacy, and

Whereas, A member of this Association has put forth a nostrum called "Sweet Quinine," which contains no quinine, and is therefore a fraudulent imposture, therefore

Resolved, That Mr. Frederick Stearns has, in this so-called "sweet quinine," and in the advertisements concerning it, violated the sense of moral rectitude of this Association, and has violated its Constitution and the general purposes of its organization.

Resolved, That for these offences, Mr. Frederick Stearns, of Detroit, be expelled from this Association.

THE PRESIDENT.—I should be sorry to put the question upon such a resolution without having heard from the members of the Association.

MR. GARRIGUES.—I think it is desirable that this matter should be reserved for a future session, as it has been sprung upon us without any notice, and I think it is desirable, as we all have our opinions in this matter, that it should be thoroughly discussed.

MR. HAMBRIGHT.—I think, with the small number of members present, it would be well to postpone the action until to-morrow, when the sense of the Association can be better ascertained. It is a very serious matter indeed, and one that should be acted upon in a deliberate manner, and not hastily. I think it is due to Mr. Stearns' standing, and the nature of the offence with which he is charged, that we should act with deliberation ; and I think it would be well for the members to postpone it until to-morrow morning, that the full sense of the meeting be attained.

MR. MCCOLLIN.—I should be glad to see this laid over until to-morrow. Mr. Stearns' position, I think, makes the offence only the more gross.

It was then moved and carried that the consideration of the resolution be postponed until to-morrow morning.

The Secretary then rose for the purpose of resigning his position, and said :

I have a statement to make regarding myself. At the meeting in 1865, which took place in Boston, the office of Permanent Secretary was created, and my name was, without my knowledge, brought forward as a can-

didate for that office; and, notwithstanding I did not feel at all inclined to serve in that capacity, I was elected, and have served thus far to the best of my ability. I find, however, that the duties are very onerous, and engross too much of my time, so that it is utterly impossible for me to continue to serve in that capacity any longer. I consider it due to the Association, in view of the importance of the office, to give a whole year's notice of my intended resignation, which I herewith desire to hand in, to take effect at the beginning of our next annual meeting. You may rest assured that it is not from any want of fidelity to the Association that I feel compelled to this course, but it is simply from those motives that I have stated,—namely, that it occupies entirely too much of my time, and that with labor which I think can be performed by others equally as well, and probably by many a great deal better.

MR. PROCTER.—I would like to ask Mr. Maisch if that resignation included the next meeting, or whether he expected, in case it was accepted, that his successor would be appointed at the next meeting; whether he wished that appointment to be made at the meeting of 1870.

MR. MAISCH.—The appointment to be made in 1870.

MR. PROCTER.—You did not intend to act yourself for 1870?

MR. MAISCH.—No, sir; that was not my intention.

The Chairman of the Business Committee read the paper of Mr. Dubois, alluded to in a previous discussion.

The Local Committee invited the members to be present this evening at an exhibition of microscopical objects, and to-morrow afternoon to attend an excursion upon Lake Michigan, to view the lake front of the city of Chicago.

The Association then adjourned until 9 o'clock to-morrow morning.

Sixth Session—Friday Morning, Sept. 10th.

The Association met at 9 o'clock, President E. H. Sargent in the Chair. The Secretary read the minutes of the fifth session, which were approved.

The Business Committee suggested to consider the resolution offered yesterday, that the next annual meeting be held at Saratoga Springs, N. Y.

THE SECRETARY.—In connection with this subject, Mr. President, I will state that last evening I received the following telegram: "Baltimore, Md., 9th September, 1869. John M. Maisch, Secretary of the American Pharmaceutical Association. The Maryland College of Phar-

macy extend a cordial invitation to the American Pharmaceutical Association to meet in Baltimore, in 1870. J. J. Smith."

MR. TURRS.—I would offer an amendment, substituting Baltimore in place of Saratoga Springs. I think we shall not be treating our friends in Baltimore right if we don't accept their invitation, four times extended to us. They are a working set of men there, and have done a great deal for the Association, and are still doing all they can.

The amendment was adopted, and the resolution as amended passed.

MR. COLCORD, on behalf of the Committee on Nominations, reported that, after having consulted with Mr. Henry W. Fuller, he was authorized to withdraw the resignation of that gentleman, who now consents to act as Chairman of the Committee on the Drug Market.

The Business Committee read a letter from Mr. Daniel C. Robbins to H. W. Fuller, in relation to the exhibitions connected with the annual meetings. The letter was referred to the Executive Committee for publication.

MR. COLCORD.—This year we have for the Chairman of the Drug Committee a Western man, who will undoubtedly look after the indigenous productions of this country, and particularly of the West. I hope that this matter will be duly attended to hereafter.

The resolutions offered by Dr. Squibb at the fifth session, regarding the expulsion of Mr. Stearns, were called up and read by the Secretary. Several members expressed their desire to hear what Mr. Stearns had to say in regard to the charges, who then addressed the meeting as follows:

MR. PRESIDENT and gentlemen: Dr. Squibb has seen fit to introduce a resolution for my expulsion. Of course, when such a serious charge is made, I feel it to be a duty to myself, as well as to the Society, to explain exactly upon what ground I stand. It is true I put into the market a specialty under the trade name of "Sweet Quinine," which is made of cinchonine. In doing this I have had a double motive. Of course, the first motive was pecuniary gain—selfishness; the second motive was this: in looking at the history of the cinchona alkaloids, I find that there are quinine, quinidia and cinchonine. Cinchonine has less oxygen in it than quinine has, but therapeutically they are identical. The discoverers of quinine, which was secondary to that of cinchonine, were, with their associates, business men, and they put quinine into the market as a business enterprise, to reap the fruits of their discovery as much as for any other reason. Quinine has become the fashion; it is no better than cinchonine or quini-

dia, but it has become the fashion. I purchased as a trade mark the words "Sweet Quinine," with a view of making it available as a business enterprise. The intent was to use it as a benefit in making money, and to bring into use this alkaloid, cinchonia, which had hitherto been neglected. I felt justified, in looking the ground over, in adopting as much of the reputation of quinine as I possibly could to make it a saleable commodity, and in that fact lies my sin against the ethics of the Association, and against the ethics of Pharmacy. I looked the matter over reflectively, and I thought I was justified in doing as I did. Had I known that my action would produce the feeling it has done, I am free to avow now that I should not have brought myself into collision with the better members of the profession of pharmacy in the country, many of whom I have known. Those are the facts, and upon that ground I stand. What I have done, I have done; I don't hide it; I don't propose to shrink from it, and you have it as I got it. Now, as far as the justice of these resolutions brought up here is concerned, and the penalty sought to be imposed upon me for this violation of the ethics of the Association, I look upon it as a very severe measure. I don't think myself that the offence calls for any such penalty. Each of us, of course, must judge for himself in such matters. Whatever the Society is disposed to do I must bow to, but the effect of such action upon me will be serious; that, it is needless to conceal. If I have lost the respect of the members of the Association, that alone is a very serious thing for me. The business point of view is secondary, and of course of no interest whatever to the Association. My sense of justice, if this action is carried out, I am free to confess, is outraged. I cannot feel that I deserve any such extreme action as this. Each of us, of course, has his standard; each one has the standard of morality his life gives him. I don't feel that I have sinned to that extent which requires any such action as that. That I differ materially from the prominent members of the Association, I have now ascertained. Justice, in the treatment of legal questions, is oftener the exponent of public revenge than of the Christian idea of correcting an evil, and it strikes me the true idea in this matter is, if the sense of the Society is against me, to pass such action as will tend to correct the evil, or error, and not drive me out of the Society. I make no pledges for the future whatever; what I have done I must be judged by, but I strongly protest against any such thing as this expulsion; I think the members can so frame their action as to suit a milder and more charitable view. However, the Association can do as it pleases, and I must abide by its action.

MR. COLCORD.—Do you acknowledge that it is an error against the ethics, or do you propose to continue in your present position? I simply want to know how you feel about it; whether, if you are pursuing a wrong course, you propose to continue in that error, or propose to abandon it.

MR. STEARNS.—I prefer that the action of the Society should be based

upon what I have done, and not upon any future action. There is a time coming when, if I continue in the Society, my future action can be judged of. I want to be judged by the past, and not by any future action. I went into the thing reflectively, and I stand right square upon the position I took. I might have resigned before this thing came up, but that would have been cowardly. I have not shrunk from the result. I might have gone into this speculation withholding my name. I could have been at the bottom of it, but I did not do that. The rumor I have heard from one member, to the effect that I have been a member of this Association several years and got a high position for the sake of selling it, falls to the ground; persistent effort in any business man can accomplish what no name can do. I regret very much my position in reference to the members of the Society. That is all I feel called upon to say.

MR. EBERT.—I would like to read a letter that Mr. Stearns wrote to the editor of the Cincinnati Medical Repository, headed "Sweet Quinine" and "Svapnia."

"Sir:—I noticed in your daily papers of 5th inst. a report made by Dr. Clendennin to the Board of Health, concerning the too free use of expensive medicines for the out door poor. That report gives a list of articles which are to be *proscribed* instead of *prescribed* the poor, and which list is headed with my new preparation, SWEET QUININE, and contains also the SVAPNIA or purified opium.

"The reason stated in the report why these articles of my manufacture are not to be used for the *poor* of Cincinnati is that they are *expensive*, and more so than *other standard preparations of the same class*.

"Now, Mr. Editor, I deny that assertion, and desire to state that SWEET QUININE is not *dose for dose*, or *weight for weight*, a cent more costly than the ordinary or bitter sulphate of quinine: on the contrary, it is a little *cheaper*. This fact any citizen of your city may prove by asking in any of your drug stores the price of both and comparing them. I also affirm that the medical power of the one, dose for dose, is fully equal to that of the other. The only advantage claimed for SWEET QUININE is that its bitterness is *completely concealed*. Why then, sir, should the *bitterness* of poverty itself be matched, in dosing your city poor, by the *bitterness* of the bitterest of physic?

"Now, in regard to the other preparation—SVAPNIA or Purified Opium—I have the *testimony* and *experience* of medical experts, many of them high in the profession, showing that the SVAPNIA is far superior to use than is crude opium, and that it represents, more perfectly than morphine, the anodyne and soporific powers of the drug. Now morphine is used by every medical practitioner of every school in preference to opium for various reasons, and with MORPHINE then should the SVAPNIA be compared only.

"Opium is a complex drug, and contains at least nine (9) medical principles, part valuable, part poisonous, of which morphine is the most valu-

able and most used. Morphine, as met with in commerce, is in the shape of a beautiful white crystalline salt, and is in a state of chemical combination with sulphuric acid, and *not* in the state it exists in the drug at all.

"There has been a growing experience in the medical profession for years that the morphine of commerce does not represent the drug as well as it did of old, and it is a belief that the bleaching of the alkaloid, and its combination with a mineral acid is the cause. The morphine made to-day is certainly more beautiful than that made twenty years ago.

"Now this SVAPNIA of mine is simply this: it consists of the MORPHINE with two other principles having analogous powers, and called CODEINE and NARCEINE; these three principles of opium only, and in the *relations* and *conditions* exactly as they exist in the drug itself, separated from the odorous principle, the foreign impurities, vegetable fibre, etc., and including the remaining and poisonous alkalies.

"The preparation of opium in this form is *not so costly* a process as that to make morphine, and *one grain* of svapnia is equal to *one-third* of a grain of morphine, and yet it is only *one-fourth the price* of morphine. If this is so, and any one can demonstrate its truth for himself, why should your CITY POOR be deprived of its beneficial use, if a share or perhaps a majority of your city physicians wish to procure it?

"Believing I have disproved the assertion that these new and important improvements in medicine cost the public any more than the ordinary preparation of the pharmacopœia, I close this with the offer of a donation of *twenty* or *thirty* ounces of SWEET QUININE and SVAPNIA for use in your city dispensary, if you have such an institution.

"Respectfully,

FREDERICK STEARNS,
Manufacturing Chemist, Detroit, Mich."

MR. WRIGHT.—I would offer the following amendment to the resolutions of Dr. Squibb:

Resolved, That in the manufacture and manner of advertising the article known as "Sweet Quinine," Mr. Frederick Stearns, of Detroit, has committed a serious offence against the Ethics of this Association, and is deserving of its severe censure."

MR. SHINN.—I think this Association ought to consider very seriously which of the two methods will best subserve the ends of the Association. If it is to have any influence at all with the medical profession, the pharmaceutical profession and the community at large, it must distinctly denounce anything like an intention to deceive or mislead either the profession or the public. In my estimation, the passage of a vote of censure will not do so as effectually as one of expulsion, and although very distasteful to all the members of the Association, I think it is due to the public that we should set aside our individual feeling and vote for principles.

MR. COLCORD.—This question has resolved itself into a matter of principle. I was appointed yesterday on the Committee to consider the revision of the Constitution and By-Laws of this Association. Do the members want me, in their action on this question, if we accept this amendment, to put into that Constitution the penalty of a violation of the Code of Ethics? If so, I am willing to do it; if they wish, I will state that a vote of censure shall be the penalty for this offence. I am here as an exponent of that Code of Ethics and that Constitution. I was one of its authors. Mr. Stearns is a particular and personal friend of mine, and it is like plucking out the right eye or cutting off the right hand to vote for these resolutions. The Colleges of Pharmacy are looking on, and we are here for the purpose of raising the standard of pharmacy. The pole is one hundred feet high and the flag represents ten thousand members, and I want to know where that standard is to float. If it is to be half-mast, let it be half mast, but let us know it; if this Association has got to put up its death flag (for its standard is to float as a matter of principle, or not at all,) the sooner we know it the better. If we are not strong enough to take a stand with ten thousand members, when shall we be strong enough to support principles of ethics. I cannot go home to my constituents after voting for such an amendment on a matter of principle and hold my head up in any kind of society, at home, or in any pharmaceutical society. Whatever the Association does I am willing to adopt, but we want to know what the penalties are. I have asked Mr. Stearns and he stands square, as he says, upon his principle. I honor him for that squareness, but if that is to be the tone, the measure of the ethics of this society, the sooner we know it the better. I have endeavored to think the matter over rightly. I have great sympathy for Mr. Stearns or any body that is in his position. He has gone into this matter knowingly; he has been a great man to advocate the ethics of pharmacy in this country; he knows all the parliamentary rules; he is here by permission of the Society to bear this discussion; everything has been orderly, and we have got to meet this question as a question of principle. I have endeavored to stave off the action if I could, but I feel, if we are not strong enough to do it, that the principles of the different colleges and the principles of this Association and the Code of Ethics go down; the stock sinks, and we are the laughing stock of the whole pharmaceutical world. That is my private feeling. My sympathy for Mr. Stearns would lead me to do everything I could for him as a personal friend and acquaintance, but here are thousands of men lying sick and ready to die for the want of pure drugs, and the truth to go with the drugs as to what they are, and so far as that is concerned, the sympathy of the community ought to be regarded, and the principles of pharmaceutical ethics ought to be regarded, instead of private sympathy with any private individual. I cannot stand on any other ground. I would do anything for him that I could to get him out of this dilemma; I would

that we had not this question to deal with; that it had not taken the phase of ethics and principles; I have done what I could to avoid it, and I cannot do any more. The question is before us on a question of principle. I do not see any way for us to meet it but as a question of principle without the influence of private and personal feeling, and I shall vote on this question to-day as I would vote for my own brother, and as I hope the Association will deal with me if I am ever drawn into temptation in a like manner. I would do by him as I would like to have them do by me, and there is no other principle on which we can settle this question.

MR. PROCTER.—I was very desirous not to be required to speak on this question. I was in hopes that Mr. Stearns would be able to get up and make such a statement in regard to it as would relieve the Association from any action of this kind—from the necessity of any such resolution as has been brought forward. Mr. Stearns has made his statement and he stands square on the ground that he has committed no moral wrong; that his error is one of policy and not of morality. I have a great regard for the sincerity of Mr. Stearns; I believe he means what he says; consequently, I can but believe that, for some reason or other which I cannot explain, Mr. Stearns has a moral obliquity in this matter. I believe he is sincere, but that does not relieve the Association. Such matters as Mr. Ebert has read I had hoped would be laid aside; we have nothing to do with them; a man in furthering his business has a perfect right, according to usage, to tender a portion of his goods for the benefit of the poor, or any thing else. The light in which I look at this thing is that an Association of this kind, to be of use in the future, must have virtue; we must stand on virtue in our actions. If there is not virtue in us we might as well disband. I look upon this action of Mr. Stearns as a stab at that virtue; as a deep wound to it, and that the action we now take must be in reference to the cure of that wound; if we can cure it without cutting off our fellow member we have had so much occasion to love and respect, let us do it, but if we cannot cure it without using the knife, let us do that.

MR. GARRIGUES.—I think we can cure it. I am strongly in favor of a vote of censure instead of expulsion.

MR. WRIGHT.—If we cut off this member, how many more are making up preparations deficient in strength, and what are they but fraudulent impostures in the same sense?

MR. COLCORD.—I hope we shall have a free expression of opinion. I should like to have a full discussion. It is a thing I believe to be vital to the interests of the Association, and if any body has anything to offer I should like to hear it.

A MEMBER.—I would like to hear from Dr. Squibb, the author of the resolutions, and particularly in reply to Mr. Stearns' explanation.

DR. SQUIBB.—I cannot discuss this subject. It is a matter of conscience with us all, and I don't think discussion does any good; we are too apt to bring forward our selfish human nature, and on that ground discussion is objectionable. I have no reply to make to Mr. Stearns. I honor him for his frankness and openness, and would that all the rest of us were equally frank; that we could assume his virtues without his faults. We are just now in a position to remember a lesson given by the Highest Authority this world has ever known, and it seems to me that lesson is what we most need;—"Let him that is without (this) sin among you first cast a stone."

MR. GILMORE.—It seems to me in asking for quinine, or rather, in asking for "sweet quinine," we might not expect to get sulphate of quinine; but we should ask for the ordinary article in the usual way if we wanted the ordinary article. We should not expect to get sweet quinine by asking for quinine any more than we should expect to get a sweet apple, or an ordinary apple, by asking for a bitter apple. I think if we want medicine we should ask for it in the ordinary manner. It seems to me that "sweet quinine" is only a trade mark, and any member has a right to any trade mark he pleases. I think when we ask for sweet quinine we should first find out what it is, and not expect sulphate of quinine or any other ordinary article.

MR. MENNINGER.—I would like to have the ayes and nays on this question; every member of this Association ought to go on the record.

DR. SQUIBB.—The question is upon the amendment which is offered as a substitute for the preamble and resolutions presented by me.

MR. COLCORD.—Whenever the ayes and nays are called for, you want a test vote, or it is impossible to attach any importance to that yea and nay vote. I move that, in taking the ayes and nays, the delegates from the Pharmaceutical Societies represented here be first called, and that we call the other members afterwards; I do this that we may know how the Colleges stand. I would also offer a motion that all delegates and members in the building be ordered before the Association.

MR. BAKES.—It seems to me the aim of this Association is to raise the standard of pharmacy. It is the fashion among many of the leading members to dispense at their various establishments in the larger cities, at their soda counters, all kinds of spirituous liquors, thereby greatly increasing intemperance. I hold that this is unprofessional and undignified, yet it is done to a very large extent. I think the offence committed by Mr. Stearns is a very serious one, but while so many pharmacists are indulging in this practice, I don't think it becomes us to vote to expel him. I cannot vote for expulsion; I shall vote for censure.

MR. MENNINGER.—It has been the aim of this Association to raise the standard of pharmacy in the United States, and although many abuses exist, in which we all more or less participate, we cannot now raise the

principle that two wrongs make a right. It is true, we sell patent medicines ; it is true, we sell wine and liquors not used for medicinal purposes. Those are conditions that unfortunately are forced upon us. The members of the Association, however, sell these nostrums without recommending them or endorsing them ; we do so more as merchants and less as pharmacists. Far different the case now under consideration ; a preparation is brought into the market, advertised as being a thing which we know it is not, and which, without wishing to be personal to Mr. Stearns, we have every reason to believe he knew it was not, and knew that this action on his part was against the code of ethics and against the practice of the members of this Association. Mr. Stearns tells us that he is willing to be judged by what he has done ; he offers no guarantee for the future ; he does not admit that he has committed an error. If we think it is an error, there is but one duty for us to perform. No one will respect a man who does not respect himself, and how can the community at large respect this Association if this Association has not respect enough for itself to enforce its laws and its code of ethics ? Throughout the more civilized countries of Europe pharmacy and the pharmaceutical profession are protected by the arm of government ; here we have no such protection ; therefore the greater the necessity of protecting ourselves ; we have at this and at the last two or three meetings discussed the policy of asking aid from the government in controlling and regulating the pursuit of our profession ; to-day a case is brought before us, while the discussion is hardly ended upon asking for legal protection—the case is brought before us of a violation of our laws and principles—a violation as full and as serious and as great as any that could have taken place, and we simply propose a vote of censure. If there is any purity in this body—if this body wants to stand as a professional body, claiming purity, claiming a high standard before this community, there is but one remedy, and that remedy is expulsion.

MR. STEARNS.—I have to say that the gentleman, to a certain extent, misapprehended me. I said I wanted to be judged by the past, for the past is all you have to judge me for. If you think for what I have done the penalty must be expulsion, I must bow to your decision, of course, but I think the mantle of charity certainly should be extended if I have erred. I don't want to promise anything ; whatever I may do in the future you can judge of. If this action is taken in this way, it is more or less precipitate. I knew nothing about this until I came to the meeting on Wednesday. If you expel me I am thrown out of the pale of the society and the profession at large. I don't want precipitate action ; you can pass such a vote or resolution of censure, it seems to me, as to cover the point if you see fit, but don't put me outside of the Association. What the future will accomplish I cannot say ; I do not want to promise. It was suggested yesterday that I should make a statement, but I felt that the initiatory should come from the other side, and then

I would make such an explanation as was necessary. I might have shirked this question, but it would have been cowardly. If I have done wrong, here is the place for judgment, and I want to be judged by the past and not by the future. My sense of justice leads me to believe that my judgment should not be something that puts me entirely beyond the pale of the Association.

MR. BALLUF.—Mr. Stearns admits that he violated the Constitution and that he sinned against the code of ethics of the Association. There is a way and chance left to every sinner to repent; this way and this chance should be left open to Mr. Stearns, but if the sin goes on, then he deserves the most severe punishment.

MR. HIRSH.—I have not been able to see that the error of Mr. Stearns was anything more than a nominal one; I do not see that it was a serious one against the ethics of the Association. It seems that he sold cinchonine instead of quinine, but he sold them at the same price, dose for dose. I do not think that act was so criminal as to make his expulsion necessary. We look to Europe as the best standard of pharmaceutical science. There the authorities protect the societies from outside influences, and yet we find this very day they are introducing cinchonine in place of quinine. They admit it is not so strong, weight for weight, and not so valuable as to its expense and cost, but they still use it for the same purposes, and recommend it to be used, especially as the supply of quinine is now too small for the continually increasing demand. If, therefore, it is possible to let Mr. Stearns sell his cinchonine under its proper name and in the proper way in which it should be sold, I think it is only a charity which is due to him, if he expresses himself willing for the future to take such trade marks as abound everywhere and are not always looked upon as criminal; his offense is merely using a trade mark which is objectionable to the society; the article would not be considered criminal in itself.

MR. HAVILAND.—I think this is a very important matter, and it seems to me it requires calm and cool deliberation, and in view of the remarks just made by Mr. Stearns, in which he states the matter has been rather precipitate, hardly giving him time to think and turn round, or make any arrangement—knowing the business entanglements of it, and also in view of the remarks of Mr. Balluf, I would propose that the whole matter be left over to our next annual meeting.

MR. TURRS.—I did not mean to say anything upon this question, but I am opposed to Mr. Haviland's motion. The matter is before us, and let us meet it squarely. We know where we are; we are here and have met in council upon this subject. Those who have been members for many years recollect what Mr. Stearns has done for this Association; we all have the warmest feelings toward him. "To err is human, to forgive, divine." Our sense of duty to the community, our desire to sustain the

ethics of our Association, would demand expulsion; our feeling for him, our feeling for each other, our feeling that we may all err, would lead us to a different course. If we censure Mr. Stearns in strong language will not that be sufficient punishment for him? I leave it to your own judgment. We want to do what is right in the matter. Now my idea of Mr. Stearns is this: He does not make any promises for the future, but don't we, the members of this Association who have known him in time past, have confidence enough in him to know that he will do right in time to come? I have that confidence. Mr. Stearns comes up here like a man; he wants to be judged by what he has done in the past. He says himself he did not know in what light this matter would be viewed by the Association. He does not say what he will do in time to come, but I think we may all, by his language, by his manner, and all the attendant circumstances of this occasion, have confidence that he will do right.

DR. SQUIBB.—If I had had no higher motive than the punishment of Mr. Stearns, these resolutions would never have been before this Association.

MR. BRINGHURST.—I rise to a personal explanation of the reasons why I shall vote as I shall. I feel the force of Dr. Squibb's remarks,—let him who has clean hands cast the first stone. The matter is fully before us, and although I hoped, from seeing Mr. Stearns in consultation with some of our members, some plan would be suggested to obviate the necessity of this action, and while I hoped that Mr. Stearns would make some acknowledgment of his moral error, or give us some guarantee for the future of an effort to do away with it, I cannot see in my mind that a vote of censure is sufficient; I see, with other members, that the interests of the Society demand the other course.

The ayes and nays were then ordered on the amendment of Mr. Wright, of New York, and the delegates of the Pharmaceutical Colleges and Societies were ordered to be called first. When the name of Mr. Leis was called, he said:

If in order, before voting upon this question, I would like to ask if Mr. Stearns is willing to withdraw the article from the market hereafter.

THE PRESIDENT.—Mr. Stearns has answered that question.

MR. LEIS.—From what I understand him to say, there is nothing definite in regard to withdrawing it from the market as "sweet quinine."

MR. COLCORD.—No guarantee.

MR. BARTLETT.—I was absent when this question was brought up, and am not competent to vote intelligently; I ask to be excused.

THE PRESIDENT.—If there is no objection Mr. Bartlett will be excused.

MR. COLCORD.—I object; the resolutions can be called and he can vote upon them. I don't ask to be excused, but if any body is to be excused I want to be.

At the request of several members, the Secretary read the original resolutions offered by Dr. Squibb, and the amendment proposed by Mr. Wright; the vote stood as follows:

Ayes—Delegates.

New York College of Pharmacy.—Bedford, Wright.

Kansas College of Pharmacy.—Breunert, Parham.

Cincinnati College of Pharmacy.—Merrell.

Chicago College of Pharmacy.—Mill, Whitfield.

Maryland College of Pharmacy.—Elliott.

Saginaw Valley Pharmaceutical Association.—Garrigues.

Alumni Association Philadelphia College of Pharmacy.—Bakes, Raser.

Other Members.—Dobbins, Ellis, Gilmore, Haviland, Horton, Massott, Meseroll, Milhan, Onderdonk, Plummer, Rice, Richardson, Rittenhouse, Chas. B. Smith, Isaac W. Smith, Stacey, F. J. Tourtelet, Tufts and White.

Delegates 11; other members 19; total 30 ayes.

Nays—Delegates.

Massachusetts College of Pharmacy.—Boyden, Colcord, Markoe, Shepard.

New York College of Pharmacy.—Coddington, Neergaard.

Philadelphia College of Pharmacy.—McCullin, Procter, Shinn, Taylor.

Maryland College of Pharmacy.—Russell.

St. Louis College of Pharmacy.—Crawley, Sennewald.

Kansas College of Pharmacy.—Leis.

Cincinnati College of Pharmacy.—Gordon, McPherson.

Chicago College of Pharmacy.—Ebert, Hambricht, Mahla.

Alumni Association Philadelphia College of Pharmacy.—Jones.

Other Members.—Balluf, Bartlett, Bliss, Borchardt, Bringhurst, Thomas Brown, Clark, Colburn, Curth, Dalrymple, Dietrich, Douglass, Drake, Dyson, Ehrman, Fish, Fuller, Hirsh, Hoagland, Hoffmann, Hooper, Lane, Maisch, Mann, McNall, Menninger, Muchmore, Murray, Orne, Paine, Sargent, Scott, Shuey, Ambrose Smith, Squibb, Stein, Strehl, Thompson, Van Sweringen, Voorhees, Wiegand, Whitney, Wilson, Woltersdorf.

Delegates 20; other members 44; total 64 nays.

The amendment was declared lost by a vote of 30 yeas against 64 nays.

Mr. Haviland renewed his motion to postpone, and said:

I would like to renew the motion made a short time ago by myself, to postpone the whole matter until the next meeting. I know that that motion will be approved of by my friend Mr. Tufts, to allow Mr. Stearns to turn himself round and get himself in the right position.

A division being ordered, the Secretary announced that 24 members had voted in the affirmative and 56 in the negative, and the President declared Mr. Haviland's motion to postpone, lost.

MR. WRIGHT.—I would ask Dr. Squibb if he cannot somewhat tone down that preamble.

DR. SQUIBB.—It is not competent to do so. We have it before us, and unless some gentleman desires to amend it, there is no power to alter it.

THE PRESIDENT.—The resolutions are the property of the Association, and cannot be changed unless by amendment.

The ayes and nays were then ordered on the original resolutions offered by Dr. Squibb, which, at the request of several members, were again read, as follows :

Whereas, It must be an object of this Association, in common with all others of similar character, to oppose what is wrong within the sphere of its action and influence, and

Whereas, The Constitution of the Association asserts that its objects are to elevate the standing, increase the knowledge, oppose the adulterations, and suppress the empiricisms of Pharmacy, and

Whereas, A member of this Association has put forth a nostrum called "Sweet Quinine," which contains no quinine, and is therefore a fraudulent imposture, therefore

Resolved, That Mr. Frederick Stearns has, in this so-called "sweet quinine," and in the advertisements concerning it, violated the sense of moral rectitude of this Association, and has violated its Constitution and the general purposes of its organization.

Resolved, That for these offenses, Mr. Frederick Stearns, of Detroit, be expelled from this Association.

The following is the vote on the passage of these resolutions :
Aye—Delegates.

Massachusetts College of Pharmacy.—Boyden, Colcord, Markoe, Sheppard.

New York College of Pharmacy.—Coddington, Neergaard.

Philadelphia College of Pharmacy.—Procter, Shinn, Taylor.

Maryland College of Pharmacy.—Russell.

St. Louis College of Pharmacy.—Crawley.

Kansas College of Pharmacy.—Leis.

Cincinnati College of Pharmacy.—Gordon, McPherson.

Chicago College of Pharmacy.—Ebert, Hambright, Mahla, Whitfield.

Alumni Association Philadelphia College of Pharmacy.—Jones.

Other Members.—Balluf, Bartlett, Bliss, Bringham, Thomas Brown, Clark, Curth, Dalrymple, Dietrich, Douglass, Drake, Dyson, Ehrman, Fish, Fuller, Hirsh, Hoagland, Hoffmann, Hooper, Lane, Maisch, Mann, Massott, McInall, Menninger, Muchmore, Orne, Rice, Rittenhouse, Sar-

gent, Shuey, Ambrose Smith, Isaac W. Smith, Squibb, Stein, Strehl, Tufts, Van Sweringen, Voorhees, Wiegand, Whitney, Wilson, Woltersdorf.

Delegates 19 ; other members 43 ; total ayes 62.

Nay—Delegates.

New York College of Pharmacy.—Bedford, Wright. †

Kansas College of Pharmacy.—Parham.

Cincinnati College of Pharmacy.—Merrell.

Chicago College of Pharmacy.—Mill.

Saginaw Valley Pharmaceutical Association—Garrigues.

Alumni Association Philadelphia College of Pharmacy.—Bakes, Raser.

Other Members.—Colburn, Dobbins, Gilmore, Haviland, Horton, Messeroll, Milhan, Murray, Onderdonk, Plummer, Rittenhouse, Charles B. Smith, Stacey, F. J. Tourtelot, White.

Delegates 8 ; other members 15 ; total ayes 23.

The original resolutions as offered by Dr. Squibb were therefore carried by a vote of 62 ayes against 23 nays, more than two-thirds of the members present having voted in the affirmative.

THE PRESIDENT.—It becomes my painful duty to announce that the resolutions are adopted, and that, in consequence of their adoption, Mr. Frederick Stearns is expelled from this Association.

MR. STEARNS.—With your permission, Mr. President, I will say that I have been hastily expelled from this Association. I feel that I have deeply erred ; judge of the future by what I do.

Mr. Bringhurst offered the following resolution :

Whereas, The custom of giving expensive entertainments to visiting members by those residing at the place of meeting is at once onerous to the latter and detrimental to the interests of this Association ; therefore

Resolved, That the Local Secretary be instructed that the members of this Association neither expect nor desire any special entertainment at the hands of the Baltimore members during our meeting there in 1870.

MR. BRINGHURST.—I think this will relieve the members from any effort or expense. Of course, if they choose to invite the Association to visit different places, that is one thing ; but I think it will relieve the members of any especial effort or great expense, and will tend to break up this bad custom which we all feel is growing on us.

MR. COLCORD.—I think the resolution is carefully worded ; the Association does not “ expect nor desire.” I think that that expresses what we mean. We cannot vote not to receive their courtesies, but if we say that we do not expect nor desire them, it is sufficient.

MR. BRINGHURST.—I tried to word it to convey the meaning that we did not desire nor expect any special entertainment.

MR. PROCTER.—I expect that is about as far as we can go; but if it is possible to convey the idea that the Association wishes positively not to have any celebration in favor of their visit, I should like to see it introduced.

DR. SQUIBB.—I heartily approve of that resolution, and I think it will be well if we express ourselves as an Association in favor of it. None of us want to avoid social intercourse; if the Baltimore members should meet us in the evening at our hotel, and give us the hand of welcome, without any entertainment, and let us go to bed and they do likewise, and then, throughout the meeting of the Association show us their sociability by allowing us to do as we please, and thus extend the best kind of hospitality to us, I think we shall be gratified. For my part, I feel very earnest in this matter. I would be very glad to have a little time spared us between the meetings of the Association—to be a little more at leisure. When the members of the Association, at the cities where we meet, take a great deal of trouble and pains to receive us hospitably, I feel bound to go, although sometimes with a bad head ache and sometimes with Association matters to do, which have to be postponed; yet, to have these extended and not to respond is very disagreeable to me and aversive to hospitality. I think if we could have the sense of the Association, which for some years has been against these entertainments, expressed in this full meeting, that it would have its due effect, and we should meet in Baltimore next year with the same sense of hospitality on the part of ourselves and our receivers that we do now, and have heretofore.

MR. SHINN.—I think the remarks of Dr. Squibb going on the minutes will convey the sense of the Association.

MR. PROCTER.—I simply wish to say that a most admirable manner of showing the kind feeling of the gentlemen of the places where we visit would be to facilitate the wishes of the visiting members to see the place that they visit; not in a body, requiring expensive outlays for moving us, but in small numbers,—a few at a time. Once or twice we have had maps presented to us when we arrived at a city, and probably not at any great expense, which has enabled us to know where we were; at other times there have been committees to take the members about, not as a body, but a few at a time, and in that way they have gained information about the place they visited which has been exceedingly gratifying to them. I have been here three or four days, and owing to constant attendance on the meetings and the exercises between them, arising from hospitable feeling, I have seen nothing of Chicago except between the place of meeting and the hotel and one short visit; and if I go away in the morning, I shall be able to say very little about it, which I regret exceedingly; but if the time that has been used in the several occasions could have been divided in the manner stated, we would have been much benefitted by it.

DR. SQUIBB.—Another objection I had, and failed to speak of when I

was up before, is, in order to provide these costly entertainments, a number of good members are abstracted from our meetings. The Committee who has such matters in charge can rarely be seen in the room, and I think this is another reason why we should discourage this matter, and why we should be allowed to draw a new line.

The resolution, as presented by Mr. Bringham, was unanimously adopted.

Mr. Shuey offered the following resolution :

That our warmest thanks are due the Reception Committee and Local Secretary of this meeting of the Association, for the cordial and hearty endeavors to receive and entertain our Association. That in Chicago we have met a whole-souled, large-hearted and open-handed people, and we will leave this place with feelings of regret.

The question was put by Mr. Tufts, and the resolution was adopted.

At the suggestion of the Business Committee, scientific papers and essays were called up. Professor Procter stated that Mr. Llewellyn, who had accepted queries 26 and 29, had been prevented from investigating the subjects in consequence of circumstances arising out of his removal to Missouri.

Dr. S. S. Garrigues read a paper on the production of Salt in the Saginaw Valley, Michigan, which was accepted and referred for publication.

DR. SQUIBB.—I would like to inquire as to the basis for the common prejudice that Saginaw Salt does not keep meats as well as other salts.

DR. GARRIGUES.—I do not know ; I have heard the same statements in regard to other salts. The great trouble is that the parties packing it do not use the proper weight for curing it. All boiled salt is very light ; they use a certain measure, and thus get really a smaller weight of salt than they should have. That made by the solar process is very dense, and in packing upwards you readily get the proper quantity to be used. I think we have fully demonstrated the fact that Saginaw Salt does cure meat and fish ; it is used for thousands and thousands of pounds of it. I have some of the strongest recommendations for it. There is one gentleman interested in a fishery on the lake shore who formerly used Syracuse salt and lost two or three lots of fish ; we directed his attention to Saginaw salt, and since that time he has turned out a good article.

The Executive Committee reported the following names of applicants for membership, who have complied with the requirements of the Constitution :

Wm. A. Cotting, Milledgeville, Ga.	H. B. Johnson, Anderson, Indiana.
Abraham Boyd, Galesburg, Illinois.	J. W. Price, Leavenworth, Kansas.
Charles F. Malone, Quincy, "	T. E. Smith, " "
Henry T. O'Farrell, Chicago, "	R. E. Wilson, Kansas City, Missouri.
Newton Pierrepont, Young America, Ill.	John W. Reay, New York, N. Y.

Messrs. Ehrman and Hambright, having been appointed tellers, reported the unanimous election of the candidates.

Mr. Turrs.—I want to have a little informal talk with the members. In old times, you will recollect, the children of Israel were ordered by the Egyptians to make a certain number of a certain kind of brick, and while they were furnished with the materials necessary to the manufacture, they did their work and made the bricks according to orders. After a while they were required to continue to make the bricks, but were not furnished with anything to burn them with; still they were not allowed to diminish the number of bricks. Your Executive Committee and Treasurer are in a somewhat similar condition. You require your proceedings to be published every year, to an increased amount, but we are without the material to burn our bricks; we are without funds in a certain degree. You will recollect that at the beginning of the session there were \$29 due me. I shall probably go away from the meeting with \$500 or \$600. Mr. Slade will take something like one-third of that for his services; that will bring it down to \$400, to commence the year upon. There is due us upon the books something like \$1200 for this year and the previous year. We shall probably get \$600 or \$800 of that within eight months; that will leave us something like \$1000 to pay the expense of our Proceedings and our other expenses, which will amount to about \$3000. What shall we do for the balance of the money? These Proceedings you want as soon as possible; the printers want their money. The Treasurer is not able to advance it; I don't think that Mr. Wiegand would feel like advancing the necessary amount of money. What shall we do? Last year we had at the beginning of the session about \$250; I received about \$600, and with that I commenced the operations of the year. We got through the year by paying some interest; the balance of interest against us was \$43. We were allowed by the printers and bookbinders interest for what we paid, and they charged us interest, and the balance was \$43. It is unfortunate that we are so situated; it is unfortunate that when this Association commenced operations the members did not contrive some way the first year to pay the expenses for that year; instead of that, they went on and borrowed from the succeeding year; consequently, we have had to borrow each year from the year that is to come, and we collect now the dues for a year from the commencement of this meeting. Members do not exactly understand, I know, that we are each year taking from the funds the dues of the year following to pay for the

Proceedings of the previous year. We took from what should have been the funds to pay the expenses of this year, to pay for the Proceedings of 1868. I wished to explain this to the Association, that they may understand it, and understand how difficult it is for us to make bricks without proper means of burning them.

DR. SQUIBB.—Is the assessment fixed by the Constitution?

MR. MAISCH.—Yes, sir; at \$3.00.

DR. SQUIBB.—Then it is not competent to change that, because we shall not have another session, but I now give notice of a change in the Constitution, to come up at the first session of next year, fixing the annual assessment of the members of this Association at \$5.00.

The notice of the proposal of Dr. Squibb to increase the dues lies over under the rules.

PROF. PROCTER.—I would like to ask the Treasurer if the amount of subscription ultimately due the Association, if paid, would meet the debts that are incurred during the year.

MR. TUFTS.—I think they would. If we could go on and receive the dues for this year I think they would pay the expenses of this year; but when there is from \$1000 to \$1500 on our books, we can't pay our way unless that is in. You have now on the list 600 men,—paying members. You receive from them \$1800; the expenses are \$3000; but we take in 100 members a year, and their membership, their dues and the amount they pay for certificates, will about bring it up to \$3000. You will just about make one hand wash the other if you had all your funds available.

MR. PROCTER.—If \$3.00 would cover the expenses we had better, by a direct appeal to the members, or by a certain amount levied upon them, raise enough to bring us square, and then try the \$3.00; because there has been a good deal said in times past about the onerousness of \$2.00. Then it was raised to \$3.00, and the price of the certificate was raised. I don't object to \$5.00, but I am afraid there are many that might.

DR. SQUIBB.—It would take a voluntary subscription for one year to bring us up where we ought to be; that is too heavy a sum to raise by personal subscription.

MR. TUFTS.—You have got to get enough in one year to pay for two years; then you could go on. I think it would be pretty hard to get \$5.00; it seems to require a good deal of effort for them to pay \$3.00.

MR. TAYLOR.—The subscription was originally \$2.00; when a motion was made to increase that, one or two members expressed very strong doubts, or fears, that the apothecaries would not pay \$1.00 in addition. It was then supposed our numbers would not increase any more, but the present session shows that the advance is not felt, and I think a further increase will not be appreciated.

A MEMBER.—Would it not be best for us to authorize the Treasurer of the Association to collect \$1.00 for the annual Proceedings every year?

MR. GARRIGUES.—I should think that would be very desirable. A majority of the members are willing to pay \$5.00, but there are a large number who do not pay it, and we are taxed to give them the Proceedings right along.

DR. SQUIBB.—The objection to that is it is unconstitutional and it is wrong to pass an *ex post facto* law.

MR. MAISCH.—Mr. Garrigues is of the opinion that members who owe receive the Proceedings, which is not the case. If a member owes for two years, he will not receive the Proceedings. We intend to make it a little more stringent, and if a man owes for one year he will not get them.

A MEMBER.—I would suggest that the annual contribution be collected semi-annually.

MR. COLCORD.—It is very hard labor to collect the dues once, and to collect them twice during the year for 800 members would be impossible.

MR. TAYLOR.—I move that the Executive Committee be authorized to withhold the Proceedings from anybody who is in arrears, and not to distribute the Proceedings until the money has been received.

MR. GARRIGUES.—That is the mode of procedure the American Scientific Association adopted; they do not send their Proceedings to those who have not paid up.

THE PRESIDENT.—Mr. Tufts said that he collects one year in advance; when is a man in arrears?

MR. MAISCH.—Our Constitution says the dues are to be paid in advance; our year 1869-70 commences with this meeting and lasts until the next meeting; the dues are consequently due now, and they ought to be paid now; they are usually collected two or three months in advance, so as to be available at the time of the meeting, and by the time the Proceedings are ready those who are in arrears, who have not paid for 69-70, if this resolution passes, will not receive the Proceedings.

THE PRESIDENT.—I hope when the proper time comes, Dr. Squibb's resolution will be adopted, for I believe \$5.00 would be as easily paid as \$2.00 or \$1.00.

DR. SQUIBB.—Especially when we remember that we get \$2.50 back in the Proceedings.

MR. TUFTS.—We give away a large number of copies to institutions, for which we receive a like value in their publications; we also give them to the State libraries. There are also 81 members who did not relinquish their life membership, to whom we have to give the Proceedings, which amounts to a large sum of money we have to expend necessarily.

MR. COLCORD.—There is one consideration more. When the Association was formed we published a pamphlet; the dues were \$2.00, and the

expenses nothing. Now, our price of admission is \$3.00, while our expenses are trebled, and \$6.00 now is no more than \$2.00 was when we made the dues \$2.00. That is the real point; we are doing more with the money and the money is not worth more than half as much, because it costs twice as much to publish the same matter as it did then.

MR. MARKOR.—I would like to ask the Treasurer if life members are entitled to the Proceedings without paying for them?

MR. TUFTS.—They are; we cannot withhold them.

DR. SQUIBB.—I would like to move that the members here present voluntarily raise their assessment to \$5.00 for this year, for the purpose of relieving the Treasury. The amendment to the Constitution cannot be acted upon until next year; it must come up at the first session next year, but it will relieve the Treasurer some if we voluntarily make our annual contributions \$5.00 for this year.

THE PRESIDENT.—I imagine that is not a proper subject for a motion made to the meeting.

MR. TUFTS.—Another difficulty is that the larger part of these gentlemen have paid.

THE PRESIDENT.—There is one question I desire to ask; whether it is desirable to distribute so large a number of copies to State libraries and other smaller institutions?

DR. SQUIBB.—That has been done once for all, and now we have only the single volumes to distribute each year.

MR. COLCORD.—I have tried to have funds raised for the Association through life membership. I was defeated in my ideas of life membership; but what I wanted to do was to fix life membership at such a price that the interest of the money would always pay a man's dues, both before and after he was dead. If we could restore that principle of life membership and make it \$100.00, or \$50.00, you could get funds enough. I do not propose this now, but I merely throw it out as a suggestion while you are getting your \$2.00. I think if we had such a provision as that, by which you could receive donations on some general platform, you would get funds enough. I am a life member, and I refused to yield it. I cannot increase my dues by \$2.00 because I don't owe you anything. You would be the gainers by life membership, for life members would make a donation of \$10.00 when you give \$2.00; the very object of life membership is to raise funds.

The Permanent Secretary read a letter from Mr. Eberle, explaining the causes of his failure to report on query 27 at this meeting.

On motion, the subject was continued to him for another year.

The Secretary also read a communication by Mr. J. L. Kid-

well, in regard to the United States cabinet of practical geology and mining, which was referred to the Executive Committee.

Mr. E. L. Milbau exhibited some pills coated with a thin film of gelatine, claiming, as advantages over the ordinary and the sugar coated pills, that by the gelatine coating the size is not increased, that they are not injured by heat, that they are perfectly soluble in the stomach, remain unaltered in the air and retain their pliability by the warmth and pressure of the fingers.

Mr. Hirsh read an essay on Golcoine or Glyconine, which was referred for publication.

Mr. SHINN.—I would like to ask whether Mr. Hirsh has tried the emulsifying power on turpentine?

Mr. HIRSH.—No sir, I have not. I would call attention to one other article. There has been a great deal of difficulty about making indelible aniline inks. Their preparation is very circumstantial, and requires much time and skill. I have made here a preparation of aniline black in a dry state which only requires to be moistened to give a permanent black that cannot be removed from cloth or paper by acids or alkalies, nor is it influenced by light. The lively colors are affected by light, but the black is not, and the difficulty of making it permanent was, it had to be dyed into the cloth like indigo, and in presenting a dry preparation of it which is readily mixed, instead of a mixture of salts of copper or any such agent, there is a great advantage. A great many of the drug stores keep nitrate of silver, which is about ten times as expensive, besides not being as good. This ink writes green, and remains green for one day, after which it will be black.

The Business Committee moved that when the Association adjourns it be to meet again on the second Tuesday of September, 1870, at 3 o'clock, P. M. The motion was carried.

Professor Procter, on behalf of the Nominating Committee, reported the nomination of Professor J. Faris Moore for Local Secretary. On motion of Dr. Squibb, the President was requested to deposit a ballot in favor of the nominee. The motion was carried, and Professor Moore was duly elected.

The paper of Mr. Hoagland, in answer to Query 18, on Vinegar, was read by title and referred to the Executive Committee.

On motion of the Secretary, it was resolved that all Queries to which answers had not been received and which were not otherwise disposed of, be dropped from the list.

MR. MENNINGER.—It will be impossible for the Committee on Specimens to make a full report at present. The Chairman of the Committee is very actively engaged in making preparations for the members in various parts of the city, and has been unable to hold formal meetings, although the labors have been divided to sub-committees, and they have their reports ready on Pharmaceutical Preparations, Chemical Preparations and Apparatus, which the Chairman intends to hand to the Committee on Publication in a consolidated report.

On motion of the Business Committee, the Committee on Specimens obtained leave to furnish their report after the close of the meeting, and to hand it as soon as possible to the Executive Committee.

Mr. Colcord exhibited specimens of a new kind of Wooden Pill and Ointment Boxes, consisting of two or more thicknesses of veneering, the innermost rolled into a tube of the requisite diameter, the others glued on to this; these tubes are then cut of the requisite length and a double bottom glued in. The layer of glue renders these boxes impervious to ointments and almost so to water.

The Minutes of the Sixth Session were then read and approved, after which the Association adjourned, to meet again in Baltimore, on the second Tuesday of September, 1870, at 3 o'clock, P. M.

JOHN M. MAISCH,
Permanent Secretary.

The pharmacists and druggists of Chicago have been untiring in their efforts to entertain the visiting members and their families. On the evening of the 7th of September a reception was extended to them in the parlors of the Tremont House, a large company of ladies and gentlemen being present. The evening passed pleasantly amid general conversation, and enlivened by music which invited many to dance. A collation was served in the dining hall of the hotel, and the members then separated for the evening, well pleased with the opportunity afforded them prior to beginning the real work before the meeting, to become acquainted with each other and privately exchange views on the most prominent topics that were to come up for consideration.

For the evening of the 8th of September, a complimentary invitation had been extended to the Association to visit the Opera House Art Gallery; the members with their families availed themselves of the opportunity to examine the works of art on exhibition, the occasion being enlivened by music from Vaas's band.

The evening of September 9th assembled a large company at the Academy of Natural Sciences, 263 Wabash Avenue, for an exhibition of microscopical objects. The success of the affair was largely due to the untiring efforts of Messrs. S. A. Briggs, Stimson, Professors Blaney, Johnson, Andrews and others, and many prominent citizens of Chicago and strangers sojourning there, among them General Sheridan, were present.

On the afternoon of September 10th the steamer Caldwell was in waiting to receive the resident and those visiting members with their families who had not yet departed for their homes. The steamer passed down the Chicago river to Lake Michigan, and then in front of the city towards the southern end, when she returned to the northern end of Chicago and, rounding the crib,

back to the place of starting. The excursion afforded an excellent opportunity for viewing the lake front of Chicago and the celebrated arrangements for supplying that city with pure lake water ; it afforded another opportunity for friendly conversation, and, as amongst the strains of music the steamer reached her wharf, the company separated well pleased with the happy termination of the first meeting of the American Pharmaceutical Association held "in the great prairie land."

JOHN M. MAISCH,
Permanent Secretary.

REPORTS OF COMMITTEES.

REPORT ON THE PROGRESS OF PHARMACY.

PREFATORY NOTICE.

The arrangement adopted in this report is in principle the same as introduced by Prof. Maisch in his report in 1862. It consists of the following seven parts :

1. Sketch of the general progress of pharmacy and collateral sciences.

2. Practical pharmacy.

3. Pharmacognosy or *materia medica*.

4. Pharmaceutical chemistry.

5. Pharmaceutical legislation, statistics, etc.

6. Obituary.

7. Pharmaceutical literature.

The selection and reproduction of the overwhelming amount of the material depending upon the labor and time of one person had necessarily to be restricted ; therefore publications the results of which were in the main already known, as well as all preliminary and unfinished announcements, which are to be the subject of future inquiries and reports, and all subjects properly belonging to the medical sciences and not to a collateral branch of pharmacy, have been omitted.

All reported matter has been as much as possible condensed, but to such an extent only as required to furnish a lucid substitute for the original sources.

The abundant and fruitful researches in theoretical chemistry have been accounted for so far only as they appeared to possess

some relative value for pharmacy either from their general or practical interest.

Since modern chemical philosophy with its notation and nomenclature has now gained so complete a foothold, it would have been an anachronism in a report on the progress of pharmaceutical sciences to disregard the rational views of the results of critical researches, or to disregard them with retrogressive skepticism. Modern nomenclature and classification have therefore been adopted in the following report and the notation of the respective authors.

Believing that criticism does not properly belong to the sphere of this report, which thereby would be swelled beyond the allowed or desirable size, I have omitted critical or additional notes, except in a few instances.

Abbreviations.

A. J. Med. Sc.—The American Journal of the Medical Sciences, Philadelphia.

A. J. Ph.—American Journal of Pharmacy, Philadelphia.

A. J. Sc. & Arts.—American Journal of Sciences and Arts. By Silliman and Dana.

Ann. Ch. & Ph.—Annalen der Chemie und Physik von Woehler, Liebig und Kopp.

Ann. Ph. & Ch.—Annalen der Physik und Chemie von Poggen-dorff.

Ann. de Chim. et Phys.—Annales de Chimie et de Physique.

Arch. Ph.—Archiv der Pharmacie. Halle.

Arch. gén. de Med.—Archives générales de Médecine. Paris.

Ber. Deut. chem. Ges.—Berichte der Deutschen chemischen Gesellschaft zu Berlin.

Berl. Klin. Woch. Schr.—Berliner Klinische Wochenschrift von Posner.

Bullet. de la Soc. de Pharm.—Bulletin de la Société de Pharmacie de Bruxelles.

Ch. N. A. R.—Chemical News, American Reprint, New York.

Ch. Cent. Bl.—Chemisches Centralblatt.

Chic. Ph.—The Chicago Pharmacist.

Compt. Rend.—Comptes Rendus des Séances de l'Académie des Sciences.

Cosm.—Cosmos.

Dent. Cos.—Dental Cosmos, Philadelphia.

Deutsch. Ind. Z.—Deutsche Industrie Zeitung.

D. C.—The Druggists' Circular and Chemical Gazette, New York.

Ind. Blätt.—Industrie Blaetter von Hager und Jacobsen.

Journ. de Ph. & Ch.—Journal de Pharmacie et de Chimie.

Journ. Franklin Inst.—The Journal of the Franklin Institute.

Journ. prakt. Ch.—Journal für praktische Chemie von Erdmann.

Journ. de ph. d'Anv.—Journal de Pharmacie d'Anvers.

Les Mond.—Les Mondes.

Lond. Ph. J.—London Pharmaceutical Journal and Transactions.

Med. Rec.—The Medical Report, New York.

Monit. Scient.—Le Moniteur Scientifique.

N. Jahrb. Ph.—Neues Jahrbuch für Pharmacie von Dr. Vorwerk.

N. Rep. Ph.—Neues Repertorium für Pharmacie von L. A. Buchner.

N. Tijdsch. Ph. in Nederl.—Nieuw Tijdschrift voor de Pharmazie in Nederland.

Pac. Med. & Sur. J.—Pacific Medical and Surgical Journal, San Francisco.

Ph. Centr. Halle.—Pharmaceutische Centralhalle von Hager.

Ph. Zeit.—Pharmaceutische Zeitung, Bunzlau.

Ph. Zeitsch. f. Russl.—Pharmaceutische Zeitschrift für Russland.

Polyt. Centr. Bl.—Polytechnisches Centralblatt von Schnedermann und Boettcher.

Polyt. Journ.—Polytechnisches Journal von Dingler.

Proc. Am. Ph. Ass.—Proceedings of the American Pharmaceutical Association at the Sixteenth Annual Meeting, at Philadelphia, 1868.

Proc. Brit. Ph. Conf.—Proceedings of the Norwich meeting of the British Pharmaceutical Conference.

Quart. Journ. Ch. Soc.—Quarterly Journal of the Chemical Society, London.

Quart. Journ. of Sc.—Quarterly Journal of Science.

Quart. Scienc. Rev.—Quarterly Science Review.

Schweiz. Woch. Ph.—Schweizerische Wochenschrift für Pharmacie von Gruner.

Wiener. Ak. Ber.—Berichte der Akademie der Wissenschaften zu Wien.

Wiggers Jahr. Ber.—Jahresbericht über die Fortschritte der Pharmacognosie, Pharmacie und Toxicologie von Wiggers und Husemann.

Wittst. Viert. Schrft. Ph.—Vierteljahresschrift für praktische Pharmazie von Wittstein.

Zeitsch. f. Ch.—Zeitschrift für Chemie von Beilstein.

Zeitsch. f. Analyt. Ch.—Zeitschrift für Analytische Chemie von Fresenius.

Zeitsch. d. oest. Ap. Ver.—Zeitschrift des allgemeinen oesterreichischen Apotheker Vereins.

BRIEF SKETCH OF THE PROGRESS OF PHARMACY AND ITS COLLATERAL SCIENCES.

The past year (of our Association) has equalled its preceding year on the track of scientific activity and practical success. New observations and deductions have been made; numerous researches and novel inventions have succeeded or culminated old ones. Chemistry, in common with Physics and Mechanics, has vastly added to the accumulated stores of our knowledge and achievements,

The Chemistry of the Cosmos is advancing from year to year. The curious fact of the transverse striation of the solar spectrum, observed in 1802 by Wollaston, and in 1814 by Fraunhofer, was converted into an instrument of chemical research by Bunsen and Kirchhoff, and has more recently culminated in the successful exposition of the material composition and relations of the celestial worlds, of the constitution of the sun, the fixed stars and the nebulae. Spectral analysis has also added new elements to the known terrestrial elementary substances; its application in analytical and technical chemistry is increasing, among which is its application in the manufacture of iron.

Prof. Thos. Graham discovered some time ago that the metals palladium, platinum, iron and others are capable of absorbing,

or occluding, as he terms it, nearly 1000 times their volume of hydrogen, and the idea has forced itself upon his mind that palladium and other metals with their occluded hydrogen probably are alloys of a volatile metal, Hydrogenium, in which the volatility of the one element is restrained by its union with the other, and which owes its metallic aspect equally to both constituents.

Organic Chemistry continues to be productive, comprising among its results the synthesis of several compounds. Berthelot's process of preparing formic acid by heating potassic hydrate in an atmosphere of carbonic oxide has been succeeded by Kolbe's and Schmidt's method of making the same acid by exposing potassium to a warm atmosphere of carbonic anhydride.

W. H. Perkins, in pursuing his interesting researches on the salicylic aldehyde, has succeeded in artificially producing Coumarin, the odoriferous principle of the sweet scented woodruff and the tonca beans.

One of the most interesting achievements in synthetical chemistry is Drechsel's preparation of oxalic acid by the direct union of carbonic anhydride and sodium. It has further been shown that, as oxalic acid by distillation yields formic acid, the synthesis of the first acid leads directly to a new synthesis of the second.

The vast domain of the Hydrocarbons, as well as that of the Alcohols and Ethers, have received numerous and valuable contributions, among which the most prominent ones are:—The researches and studies of Berthelot¹, of R. Fittig, Jul. Vellguth, E. von Furtenbach and J. Stoerer², of A. Wurtz³ and Karl Gräbe⁴. Berthelot's discovery of a universal method of transforming any organic substance into a hydrocarbon, with the amount of carbon unchanged, and the hydrogen a maximum, has been fruitful in theoretical chemistry. Valuable contributions on the constitution of alcohols and aldehydes have been furnished by F. Beilstein and A. Kuhlberg⁵, on the synthesis of the monatomic acids by L. Carius⁶, on citric acid and the

(1) Ann. Ch. und Ph. Suppl. 247. (2) Ibid. 1868. (3) Ibid. 1868. (4) Ibid. 1869. (5) Ibid. 1868. (6) Ibid. 1868.

citrates by H. Kämmerer¹, and on the nitroprussids by W. Weith². A. W. Hofmann's successful transformation of the aromatic monamines into acids richer in carbon have been extended³. Matthiessen's discovery of apomorphia is not only interesting in scientific chemistry, but seems to have furnished a valuable remedial agent⁴.

Isomerism has been the subject of the continued masterly researches of A. Hübner, A. Petermann and R. Biedermann.⁵

Among the valuable contrivances which have been contributed to practical chemistry, are Bunsen's filter air pump⁶ and Crookes' spectro-microscope⁷.

Pharmaceutical chemistry and practical pharmacy have been enriched by the introduction of the dialysed and of the so-called soluble modifications of the ferric oxide preparations and by valuable contributions to our knowledge on the extracts and their preparation. The much disputed question about the decomposition of chloroform by light has finally been settled. Noteworthy essays in pharmaceutical chemistry are:—L. Riederer's method of detecting mercury in the animal organism⁸, Dragendorff's contributions to the detection of morphine and narcotine in the animal organism⁹, and his mode of separation of the alkaloids in forensic analysis¹⁰; Matthiessen's and Wright's discovery that meconin and cotarnine in opium extracts are the product of splitting of narcotine¹¹; O. Hesse's continued researches on the cinchona alkaloids, recently extended to the modifications of quinidine¹². Grandvall's method of preparing the extracts in the so-called vacuo, has found acknowledgment by its adoption in the new French codex, and has given rise to Prof. Schroff's investigations and comparative experiments with the various narcotic extracts.¹³

Valuable dissertations are L. Schoonbrodt's researches on the changes of vegetable drugs by desiccation,¹⁴ and Schmieden's on the tannates in the vegetable kingdom.¹⁵

(1) Ibid. 1868. (2) Ibid. 1868. (3) Ch. N. A. R. Oct. 1868, 189. (4) Ch. N. A. R. Aug. 1869, 86. (5) Ann. Ch. und Ph. 1869. (6) Ch. N. A. R. 1869. (7) Ibid. 1869. (8) N. Rep. Ph. xvii, 257. (9) Ibid. xvii, 642 and 705. (10) Ibid. xvii, 281. (11) Proc. Norwich Meet. 1868, 57. (12) Ann. Ch. und Ph. 146, 257. (13) Zeitsch. d. Oest. Apoth. Ver. vi, 99. (14) Viert. Schrift. f. Ph. xviii, 73. (15) Ph. Zeitsch. f. Russl. 1868.

Foremost among the contributions to the science of pharmacognosy are Prof. Schroff's report on pharmaceutical drugs and preparations at the recent Paris exhibition¹, and Fayk-Bey's essay on opium, which is perhaps one of the most comprehensive and lucid expositions ever published on this subject².

Chemistry in its application to arts and trades is so fruitful a subject, and in many points so closely connected to pharmacy, that at least a few of its conspicuous achievements of especially practical interest may be mentioned. Such are the improvements in the manufacture and refining of cane and beet sugar. Lardani's discovery of the manufacture of sulphuric acid without the use of large, expensive leaden chambers³, the suggestion of a substitute for Leblanc's famous process for the manufacture of sodium carbonate from the chloride by means of chromium-sesquioxide,⁴ and Graebe & Liebermann's beautiful discovery of the artificial preparation of alizarine by means of anthracene.⁵

The great interest in the improvements and discoveries of late years in the manufacture of iron and steel is still on the increase. The merits and alleged defects of the Heaton process⁶ have undergone a searching examination at the hands of the iron-masters of Great Britain and Germany. So fierce has been the dispute over this important subject, that it is impossible to determine at present, after reading over the extensive literature of the controversy, whether the Heaton process is or is not one of the great discoveries.

Besides this, novel processes with similar results have been suggested by Siemens and Martin, by Park and Love, and by James and Jones, in England, and by G. W. Nasarow, in St. Petersburg.

The recent invention of M. Ellershausen, in Pittsburg, Pa., for refining crude cast-iron is being rapidly introduced into our iron works. If successful, it will greatly advance the problem of cheap iron. The process consists in the conversion of crude cast-iron, as it runs from the smelting furnace, into wrought iron, by the admixture of pulverized iron ore, whose oxygen combines

(1) N. Rep. Ph. 1868. (2) Journ. de Ph. et de Ch. 5. ser. vii, 37. (3) Dingl. Polyt. J. 187, 521. (4) Deut. Ind. Zeit. 1868, 521. (5) Ber. d. Deut. Chem. Ges. ii, 14. (6) Ch. N. A. R. 1868 and 1869.

with the carbon and the impurities, eliminating them as in the puddling process¹.

Cheap chemical processes, most of them based upon the anti-septic properties of phenol, have been applied to the art of preserving animal food, which promise to remedy the deficient supply of meat in our large cities by drawing upon the abundant living herds in Texas, on the Prairies of the North American, and the Sierra's of the South American Continent.

Natural philosophy has been not less prolific. Electro-chemistry and electro-magnetism have been enriched by valuable and important contributions. The discovery by Edw. Becquerel, that capillarity is an electro-motive power is noteworthy, since its further prosecution cannot fail to bring on important results.

Wm. Crookes has improved the instrument and method of Arago's measurement of the luminous intensity of light². Prof. Tyndall has added to the domain of chemical inquiry a new kind of physical experiment, remarkable for its simplicity of idea and for the plenty of its exceedingly beautiful phenomena. It consists in subjecting the vapors of volatile liquids to the action of concentrated sunlight or to the beam of the electrical light³.

The doctrine that light and heat are physically identical, and their differences are only relative differences due to our perceptions, has received a new evidence by Prof. Knoblauch's observation, that heat, like light, when transmitted through doubly refracting crystalline films, suffers interferences, so that in the polariscope, if the analyzing prism is rotated, the calorific rays transmitted in opposite azimuths are complementary to each other.⁴

A distinguishing peculiarity in natural philosophy of recent years is found in the relations between physical and biological sciences and the increasing prominence of the doctrine of the conservation and correlation of forces, which has been of great service in scientific generalization. This fruitful doctrine, however, has as yet failed to furnish any of the much hoped-for expositions of the phenomena of vegetable and animal life. To all appearances life cannot be resolved into a form of physical force. We have a

(1) Ch. N. A. R. July, 1869, 12. (2) Ch. N. A. R. Sept. 1868, 125.
(3) Ibid. Feb. 1869, 65. (4) Poggend. Annal. 1868.

proximate explanation of the transmutation of electrical into magnetic energy; we can conceive how the magnet produces motion, how motion calls forth dynamic energies; we have a theory of the transformation of heat into molar force, of light into heat and *vice versa*, but all this knowledge gives no clue to the mystery of the conversion of heat, light, electricity and chemical force into the manifestations of vegetable life or into the muscular energy in a living being. Light and heat consumed and chemical actinism revived are complete equivalents; each represents the other; neither has suffered any change from association with the vital principle. The organic changes, therefore, are now regarded as equivalents of expended physical forces into which molar energy, when it disappears, is transformed. The old¹ truth, that no force is ever lost nor even created any more than matter, has now been established beyond doubt.

From a general point of view, this pregnant question stands alike in importance with Darwin's theory of the origin of species by natural selection, which is continually gaining ground among zoölogists and botanists. It is now widely admitted that all forms of life are the modified descendants of pre-existing ones.

When both these prominent doctrines of our day are now and then branded as controverting or setting aside a designating mind in nature and in the universe, such a misinterpretation is unjust, since they only relate to the forms and material changes and manifestations and not to the principle of life, still less to the moral or mental principles of the soul.

After a long period of indecision and struggles, as regards the equivalency and atomicity of a majority of the elements, it is gratifying to find that, at the present moment, an almost complete unanimity prevails among chemists. This unanimity, however, does not yet extend to notation and nomenclature.

To Dalton's "new system of chemical philosophy," which first introduced in 1804 the expression of atomic weight, and to Gerhard's division of volatile bodies into a majority whose recognized atoms correspond respectively with but two volumes; and from his suggestion, in conjunction with Laurent to

(1) Ovid. metamorph. Lib. xv. 252—260.

double the atomic weights of these last, so as to make the atoms of all volatile bodies, simple and compound, correspond each with four volumes of vapor, and finally to the ingenious conception and the concrete generalization of a few living philosophical master-minds, must be traced the vigorous development of the natural views which now prevail in chemical philosophy.

It would altogether surpass the boundaries of this report to incorporate therein a brief outline of the fundamental doctrines of modern chemical philosophy. To meet, however, the wishes of those who for one or the other reason probably have had no opportunity to familiarize themselves with the systematic organization of the structure of the chemical science, I subjoin a brief delineation of the systematic classification of the elementary as well as of the compound organic substances, as adopted by the majority of chemists.

This classification, by its logical consistency and organic combination, bears to the entire material of the chemical science a similar structural and generalizing relation, as for example, in botany, Jussieu's and DeCandolle's systematic organization does to Linnæus' ideal classification.

For any further information I refer to well-known standard works:—For the English literature, the tenth edition of Fownes' Manual of Chemistry, is perhaps the best exponent of modern chemistry, besides its antecedents, A. W. Hofmann's introduction into modern chemistry, and Watt's Dictionary of Chemistry. In the French language, A. Naquet's principes de chimie fondée sur les théories modernes, twelfth edition, and Ad. Wurtz, Histoire des doctrines chimiques depuis Lavoisier jusqu'à nos jours, are probably the most instructive manuals, while the German literature abounds in works on modern chemistry of unsurpassed excellence.

Systematic classification of the elementary substances and of their compounds.

1. The elements are divided into:—

Monogens, which combine in only one proportion, and in

Polygens, which are capable of uniting in two or more proportions.

Monogens: Hydrogen, Chlorine, Bromine, Fluorine, Silver, Potassium, Sodium, Lithium, Cæsium, Rubidium.

Polygens are all the other elements.

According to modern views, the equivalent weight of a polygenic element is the smallest quantity of it that can unite with an equivalent of a monogenic element; the atomic weight, or atom, is the smallest quantity of an element that can unite with others without introducing fractions of equivalents. With the monogenic elements the atomic and equivalent weights are identical, and can replace each other one by one, but the atomic weight of a polygenic element is always greater than its equivalent weight is, in the ratio of 1 to 2, 3, 4, &c. Therefore an atom of a polygenic element always takes the place of, or is equivalent to, two or more atoms of a monogenic element.

2. With respect to their equivalency or saturating power among themselves the elements are designated as:—

Univalent elements or Monads.

Bivalent “ “ Dyads.

Trivalent “ “ Triads.

Quadrivalent “ “ Tetrads.

Quinivalent “ “ Pentads.

Sexvalent “ “ Hexads.

Elements of even equivalency, viz., the dyads, tetrads and hexads, are also included under the general term *Artiads*, and those of uneven equivalency, viz., the monads, triads and pentads, are designated as *Perissads*.

Assuming that the true equivalency or atomicity of a polygenic element is that which corresponds with the maximum number of monad atoms with which it can combine, and that the maximum equivalence of a polygenic element is that which represents its normal mode of combination, the elementary bodies are classified as in the following table, in which the names of the so-called metalloids are printed in italics, those of the metals in Roman type, and the elements are further divided by horizontal lines into groups consisting of elements closely related in their chemical characters; in each of these groups the elements are arranged in the order of their atomic weights, beginning with the lowest:

Classification of the elements according to their equivalency:—

MONADS.	DYADS.	TRIADS.	TETRADES.	PENTADS.	HEXADS.
<i>Hydrogen.</i>	<i>Oxygen.</i>	<i>Boron.</i>	<i>Carbon.</i>	<i>Nitrogen.</i>	<i>Sulphur.</i>
<i>Fluorine.</i>	<i>Calcium.</i>	<i>Gold.</i>	<i>Silicon.</i>	<i>Phosphorus.</i>	<i>Selenium.</i>
<i>Chlorine.</i>	<i>Strontium.</i>	<i>Thallium.</i>	<i>Titanium.</i>	<i>Vanadium.</i>	<i>Tellurium.</i>
<i>Bromine.</i>	<i>Barium.</i>		<i>Tin.</i>	<i>Arsenic.</i>	<i>Chromium.</i>
<i>Iodine.</i>	<i>Beryllium.</i>		<i>Aluminium.</i>	<i>Antimony.</i>	<i>Molybdenum.</i>
<i>Lithium.</i>	<i>Yttrium.</i>		<i>Zirconium.</i>	<i>Bismuth.</i>	<i>Tungsten.</i>
<i>Sodium.</i>	<i>Lanthanum.</i>		<i>Rhodium.</i>	<i>Niobium.</i>	
<i>Potassium.</i>	<i>Didymium.</i>		<i>Ruthenium.</i>	<i>Tantalum.</i>	
<i>Rubidium.</i>	<i>Erbium.</i>		<i>Palladium.</i>		
<i>Cæsium.</i>	<i>Thorium.</i>		<i>Platinum.</i>		
<i>Silver.</i>	<i>Magnesium.</i>		<i>Iridium.</i>		
	<i>Zinc.</i>		<i>Osmium.</i>		
	<i>Cadmium.</i>		<i>Lead.</i>		
	<i>Copper.</i>		<i>Manganese.</i>		
	<i>Mercury.</i>		<i>Iron.</i>		
			<i>Cobalt.</i>		
			<i>Nickel.</i>		
			<i>Cerium.</i>		
			<i>Indium.</i>		
			<i>Uranium.</i>		

3. The classification of organic compounds is based upon the equivalence or atomicity of carbon. This element is a tetrad, being capable of uniting with at most four atoms of hydrogen or other monatomic elements. Methan or marsh-gas, CH_4 , for example, is therefore a saturated hydrocarbon, not capable of uniting directly with monad elements, but only of exchanging a part or the whole of its hydrogen for an equivalent quantity of another monad element, or by taking up any number of dyad elements or radicals, because such a radical introduced into any group of atoms whatever, neutralizes one unit of equivalency, and adds another, leaving therefore the combining power or equivalence of the groups just the same as before.

Accordingly the hydro-carbons take up, by substitution of a part or the whole of their hydrogen, any number of molecules of bi- or more valent compound radicals, and therefore form such an extensive series of compound radicals. From these hydro-carbon radicals, others of the same degree of equivalence may be derived by partial or total replacement of the hydrogen by other elements or compound radicals.

In fact all well-defined, organic compounds may be supposed to be formed by combination and substitution among those radicals, each entering into combination, just like an elementary body of the same degree of equivalence.

Accordingly the organic compounds may be arranged in the following classes :—

1. Hydrocarbons, containing even numbers of hydrogen atoms.
2. Haloid ethers ; compounds of hydrocarbons with halogens.
3. Alcohols ; compounds of hydrocarbon radicals with hydroxyl.
4. Alcoholic oxides ; compounds of hydrocarbon radicals with oxygen.
5. Sulphur and Selenium Alcohols and Ethers ; compounds analogous in composition to the alcoholic oxides, the oxygen being replaced by sulphur or selenium. The sulphur and selenium alcohols are also called Mercaptans.
6. Acid Halides ; compounds of oxygenated radicals with chlorine, bromine, iodine.
7. Organic acids ; compounds of oxygenated radicals with hydroxyl.
8. Acid oxides, sometimes called anhydrous acids or Anhydrides.
9. Ethereal Salts or compound Ethers ; compounds formed from acids by substitution of alcoholic radicals for hydrogen, just as metallic salts are produced by substitution of metals for the hydrogen in acids.
10. Aldehydes ; compounds intermediate between alcohols and acids. They are produced by oxydation of alcohols, and are reconverted into the latter by the action of nascent hydrogen.
11. Ketones ; compounds derived from aldehydes by the replacement of one atom of hydrogen by an alcohol radical.
12. Amines or Alcohol bases, or Compound Ammonias ; compounds of alcohol radicals with amidogen (NH_2), imidogen (NH), and trivalent nitrogen.
13. Alcoholic Ammonium Compounds ; compounds containing pentad nitrogen, and having the composition of ammonium salts in which the hydrogen is more or less replaced by alcohol radicals.

14. Phosphorus, Arsenic, and Antimony Compounds, analogous to the nitrogen compounds 12 and 13.

15. Organo-metallic bodies; compounds of hydrocarbon radicals with monad, dyad, and tetrad metals.

16. Amides; compounds exactly analogous to the amines, but with acid radicals instead of alcoholic radicals.

17. Amic Acids; acids consisting of a bivalent or trivalent acid radical combined with hydroxyl and with amidogen.

These classes, most of which have their analogues amongst inorganic compounds, include nearly all artificially prepared organic bodies, and the majority of those produced in the living organism. There are still, however, many compounds formed in plants and animals, the chemical relations of which are not yet sufficiently established so as to classify them with certainty. Such is the case with many vegetable oils and resins, with most of the alkaloids, and several definite compounds formed in the animal organism, as albumin, fibrin, casein and gelatin. Abstract from Fownes' Manual of Chemistry, 10th Edit.

PHARMACY.

APPARATUS.

Alcoholometer. Berquier and Limousin have constructed an alcoholometer on the principle that the drops of an alcoholic liquid increase in size with the strength of alcohol. The instrument consists of a graduated glass-tube, of thirty centim. length, and one m. m. width, open on both ends. The lower is provided with a small suckling pump, through which the liquid is introduced into the tube. The percentage of the alcoholic liquid is found by the comparison of the number of drops falling from the instrument, and the volume of the liquid within the tube.

The instrument is the more valuable as its accuracy increases with the decrease of the alcoholic strength of the samples, and as substances contained in solution, as f. i. sugar, dextrin, gum, acids, etc., do not affect the reaction. It is, therefore, especially adapted to the alcoholometry for wines, beers, brandies, etc. Ph. Zeit. 1869, 7.

Washing Precipitates. To Prof. Bunsen we are indebted for a valuable apparatus for washing precipitates on filters: a so-called filter-air pump, whose mode of filtering depends not upon the removal of the liquid by successive attenuation, but upon its displacement by forcing the wash water through the precipitate by means of the atmospheric pressure.

Prof. Bunsen's paper, with illustration, is given in full in the June number of the Ch. N. A. R., 1869. This valuable contrivance has met with general acceptance. It is also being rapidly introduced into our American laboratories. For that of Yale College it has been constructed with some slight alterations, as described in Am. J. of Science and Arts, July 18th, 1869, p. 113.

An apparatus for the same purpose, and for continued filtration, was exhibited by H. B. Brady at the Norwich meeting of the Brit. Ph. Conf. The apparatus is described and illustrated in the London Ph. J., October, 1868, p. 216, and in Ch. N. A. R., December, 1868, 326.

A Syphon Filter of simple construction, especially adapted for the washing of gelatinous precipitates, has been constructed by E. Fleischer, of Dresden. It is described and illustrated in the Ch. N. A. R., June, 1869.

Bunsen's Burner. Ch. N. A. R., October, 1868, 185, gives the illustration and description of a simple apparatus, to be constructed over a Bunsen's burner for evaporation at low temperature.

An apparatus for the extraction of drugs, by means of ether, is described by Storch in Zeitsch. f. Anal. Chem., vii., 68.

An apparatus for extraction by displacement, (appareil à déplacement continu), by M. Latien, is described in Journ. de Ph. d'Anvers, xxiv, 193.

Still. C. O. Curtman describes and recommends, in Am. J. Ph. May, 1869, a pharmaceutical still, which, simple in construction, deserves, to all appearance, the attention of practical pharmacutists.

Press. Reynen has constructed a new screw press for the

pharmaceutical laboratory. N. Tijdschr. Ph. in Nederl., 1868, 232.

Spectrum Microscope. Wm. Crookes has recently constructed an improved spectrum microscope, which obviates the disadvantages of the ordinary hitherto used instrument. The principal features of the new apparatus are the sub-stage and the box of prisms. The former carries the sliding-plate to hold the slit and apertures, a spring stop and screws for adjusting them, and a reversed object-glass. The slit and this object-glass are about two inches apart, and if reflected light is passed along the axis of the instrument, the object-glass forms a very small image of the slit in front of it. The direct vision-prism consists of three flint and two crown, fitted in a box screwed into the end of the microscope. By means of a pin they are thrown in or out of action. The object-glass screws on in front of the prism box. By taking the illumination from the sky or a whitecloud, Fraunhofer's lines are visible, and by direct sunlight they are seen in great perfection; the dispersion is sufficient to cause the spectrum to cover the whole field, and the achromatism of the lenses being nearly perfect, the lines from W to G are partially in the same focus. When the light is good the appearance of the spectrum and the power of grasping faint lines are greatly improved by dividing the light with a Wenham prism, and using both eyes; whilst the stereoscopic effect thereby communicated to some absorption and interference spectra throws a new light on the phenomena.

By using an alcohol lamp instead of the illuminating lamp, the instrument answers admirably for the examination of flame spectra. Quart. J. of Scienc., July, 1869, 464.

Improved apparatus for the sublimation of benzoic acid has been constructed by C. Rump. It consists of a circular kettle of sheet iron, which is placed upon a stove, and has a cover, through the centre of which a thermometer can be inserted. Two opposite sides of the kettle connect each with a six inch tube, six inches in length, and these are inserted into tubes three inches long, leading on each side into paper boxes forty-four inches in length and twenty-seven inches wide, at the extreme end of which a hole of four inches diameter is cut into the lid and sup-

plied with a tube one foot long. The benzole or benzoic acid is put into an iron or earthen-ware capsule, which is placed into the sheet-iron kettle. The opening in the cover allows the feeding of the apparatus after sublimation ceases. The cover may be kept heated to prevent condensation of the acid, which sublimes very regularly if the thermometer is kept at a temperature of 200 to 240° C. Luting is not required. N. Rep. Ph. xvii, 671.

OPERATIONS AND PROCESSES.

Washing of Precipitates. Prof. Bunsen has published, in the Annal. der Ch. und Ph., a valuable memoir on the washing of precipitates. The author deduces a mathematical formula for calculating the amount of water necessary for washing a precipitate, and describes his new vacuum filter and a tabula constructed from the formula calculated on mathematical deduction. London Ph. J., Feb., 1869, 487.

Bumping of fluids while boiling. M. Pollogio suggests a simple contrivance to prevent this troublesome phenomenon. It consists in placing through the cork of the retort a strong glass tube reaching near to the bottom of the retort, and bending the outer end of the tube rectangular, drawing its end to a fine point. If the liquid to be distilled corrodes the cork, a tube must be selected so wide as nearly to fill the aperture, and must be closed by a suitable lute. With this contrivance, strong sulphuric acid, crude pyrolignous acid and other fluids known as bumping when boiling, distill readily, and without bumping. Zeitsch. f. Anal. Chem. vi. 396.

E. Winkelhofer suggests for the *same purpose* the application of an electric current, led into the fluids to be distilled by means of suitable conducting wires. His method is completely successful. His contrivances are ingenious, but perhaps too complicated for general use. Ber. d. Deutsch. Chem. Ges. Mai, 1869.

Saline solutions. The phenomena presented by supersaturated solutions have occupied the attention of many inquirers. The fundamental fact on which the subject rests is quite remarkable, namely, that a strong, hot solution of a salt, such as that of sodic sulphate, on cooling in an open vessel, retains the salt in solution at ordinary atmospheric temperatures, and so be-

comes supersaturated, that is, capable of holding a much larger quantity of salt than the water could take up at this reduced temperature. Gay Lussac referred the state of supersaturation to the inertia of the saline molecules, as well as to the molecular condition of the sides of the vessel. Löwel, after an elaborate inquiry extending over many years, arrived at the conclusion that the state of supersaturation is one in appearance only, and not in fact; that a solution of the ordinary decahydrated sodic sulphate, for example, saturated at the boiling point, and cooling down in a closed vessel to about 60° F., changes its molecular condition into one of a more soluble salt, the hepta hydrated; that on a further reduction of temperature, crystals of the modified, or seven-watered salt, are deposited at the bottom of the solution. If, however, the vessel be opened, or the solution touched with an active nucleus, it instantly recovers the molecular condition of the ten-watered salt and becomes solid. As to the action of the air and other nuclei, Löwel regards it as the effect of one of those mysterious contact actions, known as catalytic, which lack any scientific explanation. Löwel's theory has generally been accepted as a satisfactory explanation of the existence of supersaturated solutions.

Recently Chs. Tomlinson, supported by a number of decisive experiments, combats Löwe's views as to the molecular change that leads to the formation of a more soluble modified salt, and substitutes an entirely new theory, to account for the formation of the modified salt. The conclusions arrived at by Chs. Tomlinson's experiments are:—1, that a number of hydrated salts form supersaturated solutions and remain so even at low temperatures, simply from the absence of a nucleus to start the crystallization. 2, That a nucleus is a body that has a stronger adhesion for the salt than for the water which holds the salt in solution, a state of things brought about by the absence of chemical purity. 3, That three or four salts form supersaturated solutions which, in cooling down, deposit a modified salt, or one of a lower degree of hydration than the normal salt. 4, That this modified salt is formed first by the deposit in small quantity of the anhydrous salt, which entering into solution, forms a denser lower stratum containing less water than the rest of the solution,

in which lower stratum the modified salt is formed. 5, That salts of a low degree of hydration form supersaturated solutions, which, on reduction of temperature or by action of a nucleus, deposit the excess of salt that held the solutions supersaturated, leaving them merely saturated; and 6, that anhydrous salts do not form supersaturated solutions. Ch. N. A. R., Sept. and Nov. 1868.

Oudemans gives, in Zeitsch. f. Analyt. Ch. vii, 419—223, schedules of the percentage of the solutions of a number of the most applied salts, determined by their specific gravity.

Chemical change. In order to discover the laws which govern the rate of any chemical change, A. V. Harcourt has instituted a series of experiments. The following propositions embody the principal conclusions to which his examinations have led:—1, The rate at which a chemical change proceeds is constant under constant conditions and is independent of the time that has elapsed since the change commenced. 2, When any substance is undergoing a chemical change, of which no condition varies, excepting the diminution of the changing substance, the amount of change occurring at any moment is directly proportional to the quantity of the substance. 3, When two or more substances act upon one another, the amount of action at any moment is directly proportional to the quantity of each of the substances. 4, When the rate of any chemical change is affected by the presence of a substance which itself takes no part in the change, the acceleration or retardation produced is directly proportional to the quantity of the substance. 5, The relation between the rate of a chemical change occurring in a solution, and the temperature of the solution, is such that, for every additional degree, the number expressing the rate is to be multiplied by a constant quantity. Ch. N. A. R., Sept. 1868, 117.

Production of Cold. According to Phipson, an intense degree of cold is produced by dissolving ammonium sulphocyanide in water. None of the many salts, lowering the temperature while dissolving, produce this effect so marvelously. Scient. Review, 1869.

Protection for Porcelain Dishes in Crystallising. For this pur-

pose paraffin has been suggested by Fr. Stolba. The paraffin is melted in the dishes, previously warmed in order to dry them completely, and heated till it commences to boil; the dishes are then turned so as to bring the paraffin in contact with the whole interior surface. After cooling it sticks perfectly; the solutions to be crystallised must of course not be heated, but left to spontaneous or vacuum evaporation. Journ. de Chim. & Ph., Aug. 1868.

Igniting point of Vapors. In commerce there are several substances which, at the ordinary temperature of the atmosphere, are sufficiently volatile to emit enough vapor to form, with atmospheric air, an explosive mixture. W. R. Hutton examined a number of such leading articles of commerce in order to establish the igniting point of their vapors. The proportion of volatile matters to be found in different crude commercial substances is variable, since they frequently are mixtures of several compounds of variable volatility; therefore no line for guidance is to be established, but in manufactured articles when more or less distinct volatile bodies are together in mixtures, the manufacturer has it in his power to exact a standard at which no vapor will evolve and no ignition occur. W. R. Hutton has devised a simple apparatus for estimating the igniting point of the vapors, and gives in a schedule the results of his experiments, stating the specific gravity and the temperature at which the substances examined emitted vapor and were ignited by a light in a distance of one and a half and half an inch. Ch. N. A. R. March, 1869, 123.

Dangerous Inflammable Liquid. Prof. Nicklès calls attention to the fact that when chloride of sulphur of commerce is mixed with bisulphide of carbon, wherein phosphorus has been previously dissolved, a fluid is formed, which, though emitting fumes when in contact with air, is harmless; on addition of liquid ammonia, however, or on passing into that liquid a few bubbles of ammonia gas, a most intense combustion ensues. This is due to the fact that the ammonia seizes upon the chloride of sulphur, forming ammonium chloride, whereby so much heat is set free as to cause the combustion of the carbon bi-sulphide and phosphorus dissolved in it. Ch. N. A. R., June, 1869, 322.

Melting and Solidifying of Fats. M. Wimmel has proved, by a series of elaborate experiments, that the generally accepted rule, that the degree of temperature of solidification and melting of solid fusible substances is exactly the same, does not hold good for fatty substances. Those properly so-called (which yield glycerine on decomposition) become solid at a temperature far less high than that at which they become fluid; substances like beeswax and spermaceti become solid immediately when their temperature falls below their melting point. M. Wimmel has found that when the solidification is retarded, there is always an increase of temperature when the solidification takes place. The fatty substance known as butter of mace becomes suddenly solid at $33^{\circ}\text{C}.$, and this solidification is accompanied by a sudden increase of temperature to $42.2^{\circ}\text{C}.$, while the melting point of this fat is $45.5^{\circ}\text{C}.$ Some fats, like beef and mutton suet, do not become clear and quite transparent unless heated far above their melting point, while beeswax and spermaceti become transparent and clear long before they are entirely molten. Pogg. Annal. 133, 121.

Reduction of Oxides by Hydrogen. W. Mueller has instituted a series of experiments with the view to determine precisely the temperature at which the metallic oxides begin to be reduced by hydrogen gas. He has experimented with oxides of various metals prepared in various ways, and also determined the effect of other gases, nitrogen, and aqueous vapor, upon the temperature of incipient reduction. The experiments have also been extended to the chlorides and sulphides of some metals. Pogg. Annal. 136, 1869.

On the influence of Drying on the active principles of Plants. L. Schoonbrodt made a series of elaborate experiments and researches in order to determine the changes which the principal constituents of officinal plants undergo when dried. Wittst. Viert. Schrift. f. Ph. xviii, 73, contains an abstract of the assay and the following general conclusions:—1, The dried vegetables are in their effect never equal to the fresh ones. 2, In drying, the vegetables suffer more or less a change of their active principles. The volatile constituents are partly volatilized or oxidized. 3, For the preparation of the alkaloids the fresh vege-

tables are preferable. 4, The composition of the plants is far more simple than previously supposed. The so-called extractive substances are only the active principles of the plant, which, when pure, are mostly crystallisable; but they are united or mixed with the products of their own decomposition and transformation and with glucose and their oxydation products. 5, The various resins are the products of oxydation of volatile hydrocarbons; the volatile acids are the products of oxydation of volatile aldehyds or of oxygenated volatile oils which frequently occur together with hydrocarbons. Even the alkaloids and the glucosides are affected by continuous atmospheric action, and are subjected to modifications and splitting. 6, In all cases a rational and quick dessication of the drugs is preferable to a slow one.

COLLOIDS.

Collodium, which besides its durability coagulates blood, is recommended by Richardson; it is prepared by addition of tannin to the absolute alcohol before the preparation of the collodium. For certain cases the addition of carbolic acid is to be recommended. N. Jahrb. f. Ph. 28, 315.

DISTILLED WATERS.

Riding suggests, in the "Pharm. Presse, 1868, 206," as a means to restore orange flower water which has turned slimy, to shake it with calcined magnesia and filter.

(The same will hold good for other distilled waters.)

EXTRACTS.

Grandval's Narcotic Extracts. Dr. von Schroff has published a series of elaborate and valuable comparative experiments with the narcotic extracts with regard to their therapeutical value, and in particular with Grandval's excellent vacuum extracts.* His paper is too extensive even for an abridged report; it is given in full in N. Rep. Ph. xvii, 321 and 453.

*The process and apparatus for the preparation of extracts in vacuo were first made known by Grandval, in 1849. The apparatus was improved by Soubeiran & Goble, in 1853, and the process has been brought to great perfection, and has been adopted in the new French Codex. Both have undoubtedly been the subject in former reports to this Association.

Preparation of Alcoholic Narcotic Extracts. The following process for the preparation of alcoholic extracts has been suggested by F. J. Kral:—To each pound of the fresh herb 8 oz. water are taken, and the whole mashed in a porcelain mortar to a pulp and expressed. After eight to ten days standing in a cool place, the decanted clear liquid is heated in a water-bath for five minutes to 75°C., and then again set aside for one day, when it is passed through a close strainer and the filtrate at once evaporated in a porcelain capsule at a temperature not exceeding 70°C., to a syrupy consistence, when it is allowed to cool, mixed with $1\frac{1}{2}$ times its volume of strong alcohol, and the mixture digested for four days.

Meanwhile the wet residue upon the strainer is digested with $1\frac{1}{2}$ times its weight of alcohol, then strained and the residue expressed. Both alcoholic liquids are now mixed, filtered and the filtrate concentrated either in vacuo or in a still by means of a steam-bath, and finally evaporated to the proper consistence.

Mixed with 4 parts of sugar or 8 p. sugar and 1 p. powdered liquorice root or milk-sugar and dried the powder keeps dry if kept in well-stoppered bottles. *Zeitsch. d. oest. Apoth. Ver.*, 1869, 41-42, and *A. J. Ph.*, July, 1869, 313.

Improvement of Extracts by the addition of Glycerin. M. Perron suggests the addition of some glycerin to the extracts as a suitable means of improving and preserving their quality and durability. The glycerin has to be added to the evaporating extracts before they thicken. Since the glycerin substitutes the water only very little is required. Perron did not try this method with resinous extracts, but thinks it will answer also. *Journ. de Ph. & de Chim.*, 4 Ser. vii, 341.

This suggestion seems to be well worthy of further experiments.

Yield of Drugs on Extracts. M. Kohlmann published, in "*Zeitsch. d. Allg. Oest. Apoth. Ver.*," the result of elaborate and extensive experiments on the yield of vegetable drugs in extracts. *Hager Centr. H. No.* 15, 1869.

Extract of Beef. As the result of a series of comparative examinations of beef extract, Hager comes to the following con-

clusions as regards the standard of commercial extracts:—It must contain not more than 22 per cent. of humidity, and 25 to 27 per cent. parts not soluble in alcohol of 0·833 sp. gr. It must not yield a precipitate more than 20 per cent. of its weight with a solution of gallo-tannic acid and not more than 8 per cent. argentic chloride. Hager's Centr. H., 1869, No. 28.

FLUID EXTRACTS.

Methods for the preparation of Fluid Extracts. C. L. Diehl has instituted some preliminary experiments for the establishment of the best, at present, possible mode of making the fluid extracts in accordance with the present U. S. Pharmacopœia. The author comes to the conclusion that to all appearance fractional percolation is best adapted to almost all drugs, provided that the proper menstruum is selected, and the whole operation is effected with knowledge and skill. C. L. Diehl justly proposes to reduce the strength of our fluid extracts, so that in general eight troy ounces of the drug may be represented by one pint of the extract, as already is the case with the extracts of cinchona and wild-cherry bark.

C. L. Diehl suggests a general formula which divides the powdered drug into portions of 8, 5, 3 and 1 oz. and by which from the first 8 oz. of the drug 4 fluid-ounces of percolate are obtained for each troy-ounce of the drug, while from the second portion of 5 ounces, nearly 5 fluid-ounces, and from the third portion of 3 oz., six fluid-ounces of percolate are obtained for each troy-ounce of drug. Chicago Pharm., March, 1869.

S. P. Duffield uses and recommends the so-called vacuum maceration for the preparation of the fluid extracts. The process consists in extracting the drug by the menstruum in a cylinder after having exhausted the air. The resulting percolation forms the extract, and is fit for bottling after having deposited. A. J. Ph., Jan., 1869, 2.

Extract of Squills. C. L. Diehl, after some experiments on the best mode of preparing the fluid extract of squills, arrived at the conclusion that the active constituents of squills are completely represented by an alcoholic extract of the aqueous extract. On this basis C. L. Diehl suggests the following method

for preparing the fluid extract: 16 oz. squills are macerated for three days in four pints of water; strain and press; the residue is macerated for twenty-four hours in two pints of water; again strain and press. Evaporate the infusions separately as soon as obtained at a temperature not exceeding 150° F. When they have obtained a syrupy consistence mix them and evaporate to extractive consistence; this extract is then, while warm and stirred, mixed with eight times its volume of strong alcohol. To the residue is added as much distilled water as to make it measure eight fluid-ounces; to them add the same volume of recovered alcohol to make one pint fluid extract, which is perfectly transparent, dark brown and very bitter; after a time it deposits a slight precipitate, consisting principally of grape sugar.

This extract is well adapted to all preparations of squills. The Chicago Pharmacist, Vol. i, No. 2.

Extract of Helianthemum Canadense. H. Primm recommends the following formula for the fluid extract of frostwort: 16 oz. leaves, 16 oz. alcohol, 8 oz. sugar, water 9.5. The bruised leaves are macerated for 8 hours with 12 oz. of the alcohol, then percolated and the balance of the alcohol mixed with 4 oz. water added upon the percolator until the displaced liquid measures 12 oz., which are evaporated in a water-bath to 4 oz. The mark in the percolator is then macerated with one pint of cold water for 12 hours, and afterwards strongly expressed. The liquid of about 12 oz. is then evaporated to 8 oz. and mixed with 4 oz. previously obtained, and the sugar dissolved. A. J. Ph., Jan., 1869, 30.

(The increase in the use and sale of commercial fluid extracts calls forth the question: is there not some danger in pushing this trade in fluid extracts (and in powdered drugs)? How many or perhaps how few examine these commercial extracts? What guarantee has the practitioner for the goodness and strength of such extracts? They are as yet frequently bought and dispensed bona fide, and certainly open a wide field to temptation and fraud.)

MIXTURES.

Chlorodyne. Squires "Companion to the Brit. Pharmacopoeia" contains the following formula for chlorodyne, one of the many

testimonia paupertatis of medicine:—chloroform 4 oz ; ether 1 oz ; alcohol 4 oz ; treacle 4 oz ; extract of liquorice $2\frac{1}{2}$ oz ; morphia chloride, 8 grains ; oil of peppermint 16 minims ; syrup $17\frac{1}{2}$ oz ; hydrocyanic acid (2 per cent.) 2 oz. D. C. Dec., 1868, 341.

Ozonic Ether. A mixture of hydrogen peroxide with ether and alcohol appears to be a stable combination, which, through its tendency of readily discharging active oxygen, seems to be an effective purifier of the air. This mixture was first made known by Dr. B. W. Richardson, under the name of ozonic ether. London Ph. J. Jan., 1869.

Aromatic Sulphuric Acid. Prof. Attfield ascertained, by repeated tests by means of various salts, that the aromatic sulphuric acid of the Brit. Pharmacop. contains no ethyl-sulphuric (sulpho vinic) acid. London Ph. J. Feb., 1869, 471.

Liquor Opii Sedativus. I. B. Groves publishes some researches on this mixture, and gives a formula for its preparation, which he recommends, not as a substitute for Battley's preparation, but for extract of opium of the Brit. Pharmacopoeia. London Ph. J. Jan., 1869.

Glycerate of Tar. J. B. Moore, in the Am. J. Ph. March, 1869, 115, gives a formula and mode for the extraction of the medicinal virtues of tar, previously trituted with magnesium carbonate by a menstruum of two parts glycerin, one part alcohol, and five parts water. This glycerate possesses all the virtues and properties of tar, of which thirty grains are represented in each ounce.

FATTY OILS.

The extraction of fatty oils by means of Bisulphide of Carbon is, according to the Preuss. Annal. der Landwirthschaft, successfully carried out on a large scale in Prussia, in the following mode: the oleaginous seeds, such as colza, linseed, mustard, rape, etc., are first cleaned on a sieve united with a winnower, and then passed into a triturator, the movements of whose cylinders are combined in such a way as to tear rather than bruise them. After this preparation the seeds pass into a revolving cylinder heated from below, whence they fall after desiccation into eight large vats, revolving on two horizontal axles. After having

closed the vats, the bisulphide of carbon is conducted into them. From the bottom of the vat the solution of oil in the bisulphide trickles out in thread-like manner, and becomes lighter, until at last the sulphide liquid runs quite colorless. This indicates the precise moment when the seeds are completely deprived of oil, and steam is then substituted for the sulphide, all traces of which are entirely removed. The vats are now uncovered and reversed, the exhausted residue is ejected upon lifts and passed successively through three mill-hoppers heated by steam. Lastly, it is ground, and forms an alimentary powder, containing 53 per cent. nitrogen.

The mixture of oil and bisulphide of carbon is then purified by steam, distilled twice, and afterwards rectified, which renders the bisulphide capable of employment in new operations. The oil obtained is purified according to its use, as burning-oil in illuminating lamps, for lubrication, or for other purposes in the arts and trades. Ch. N. A. R. Oct. 1868, 194.

A new method of purifying Oils has been suggested by M. Michaud. Prof. A. Chevalier describes the process in the *Bullet. de la societ. d'encourag. pour l'ind. nationale*, No. 196, April, 1869, thus: Michaud's process consists of a defecation of the raw oil by the simultaneous introduction of jets of air and thin streams of sulphuric acid, whereby those substances contained in the raw oil, which are injurious to its properties for use in lamps are coagulated and brought to the surface of the oil as a scum, which can be easily removed; the oil is next washed with water, afterwards heated by steam to 100° C., and lastly filtered through cotton and a layer of clean and pulverized marble, at a temperature of 40° C., yielding an excellent oil.

Sesam oil gives an intensely green reaction with a mixture of sulphuric and nitric acids; since no other fat oil shows this reaction, it may be used as a test for the adulteration of other fat oils with sesam oil; if they contain only ten per cent. the reaction is reliable. N. Jahr. Ph. Jan., 1869.

Bleaching of Palm Oil by chromic acid. M. Engelhardt suggests the following mode of bleaching palm oil: A convenient quantity of the oil is placed in a cauldron and heated to about 60° C., and allowed to repose during twelve hours; it is then poured

into a clean vessel and cooled down to 40°C . Now a solution of fifteen parts potassium bichromate to forty-five parts of water is made, and when still warm sixty parts of chlorhydric acid are added. This liquid is then mixed under vigorous agitation with one thousand parts of the oil. By continued stirring, the oil is colored green and the chromic oxide is completely separated, when the oil becomes clearer, and finally quite limpid. It is now washed with hot water, and is then obtained perfectly white. D. C. Feb. 1869, 38.

Almond Oil. Lipowitz has recommended the use of hypochlorite of lime as a means of detecting the adulteration of olive oil and of sweet almond oil with the oil of poppy seed. When eight parts of either of them is rubbed up and shaken with one part of bleaching powder and left at rest, after some four or five hours a layer of clean and limpid oil separates and floats at the top and surface of the mixture, which layer is, if the oils operated upon are pure, at least half the bulk of the original mixture. If, however, poppy oil is mixed with either of the two oils, the mixture has the appearance of a liniment, from which no oil separates. Almond oil, if adulterated with one-eighth part of poppy-seed oil, behaves as if it were almost pure poppy oil. The action of this reagent is explained by the rapid oxidation of all so-called drying oils, which, on drying, yield solid products, by continuously absorbing oxygen, before entirely changing into water and carbonic acid. Ch. N. A. R. March, 1869, 159.

Cod Liver Oil. Dr. B. A. Foster, in the Brit. Med. Journ., recommends the addition of some ether to cod-liver oil as improving the therapeutical, as well as the palatable properties of the oil. London Ph. J. Jan., 1869.

Phosphorated Oil is best prepared, according to C. Méhu, by first heating sweet almond oil to 392°F . After cooling, it is filtered, and the dried phosphorus is dissolved (one grain to one hundred grains of the oil) at about 176°F . To prevent the phosphorescence of the oil, Méhu suggests the addition of four per cent. ether. Journ. de Chim. et de Ph. No. 7, 1868.

Olive Oil. The Comité du Commerce des Alpes Maritimes,

at Nizza, has offered a price for a reliable and simple method for the detection of the adulteration of olive oil. M. Behrens, in Lausanne, thereupon has published a test which he has employed since 1853, and which he avers to answer satisfactorily: Equal parts of the sample, and of a mixture of equal parts of crude sulphuric and hydrochloric acids are slightly shaken. If the color of the oil remains unchanged it was pure; if it contains sesam oil it turns green; if linseed oil, red brown; if sweet almond oil, pink; if rape-seed oil, red-brown; if poppy-seed oil, red. Ph. Zeit. 1869, No. 57.

No. 56 of the Ph. Zeitung, 1869, contains a notice that the above named committee have awarded the prize for the best and simplest mode to test the purity of olive oil to a pharmacist of Alexandria, (Egypt). His method was, however, as yet not made known.

VOLATILE OILS.

J. Frank has continued *his researches on the adulteration of the volatile oils*. These elaborate studies are too comprehensive and not well adapted to be given in an abbreviated report. Frank's memoir is given in full in Neues Jahrb. d. Pharm. xxiv. 28. Frank, as will be remembered from former reports, uses the reaction of fuchsin with the oils, as a means for the detection of an alcoholic adulteration, and a polaristobometer for the detection of admixture of cheaper volatile oils.

Oil of Peppermint. Among the methods for testing commercial peppermint oil a novel one is given by M. Roze for determining an adulteration with turpentine oil; it consists in blowing a slight current of air through an S shaped glass tube upon the surface of about half an ounce of the sample contained in a wide test tube; if the oil contains more than four per cent. oil of turpentine, above its surface is formed a white striated cloud, probably caused by a hydrate of the oil of turpentine. Journ. de Ph. et de Chim. 4 ser. viii. 125. Hager thinks this reaction reliable, although he found, among the oils which do not explode with iodine, several producing the same reaction. Cent. Halle ix. 296.

Oil of peppermint has recently been found adulterated with the

essential oil of copaiva balsam. In order to detect this, St. Martin suggests to heat a sample carefully with strong nitric acid; when cooled, the oil will have thickened and will be the more resinified the more copaiva oil it contained, while pure peppermint oil remains liquid, only turning dark brown. Zeitsch. d. Oest. Apoth. Ver. 1869.

Oil of Bitter Almonds. W. A. Tilden, in Viertlj. S. Ph., calls attention to the fact that essential oil of bitter almonds, when not freed entirely from water, is apt to decompose, whilst oil free of water keeps for any length of time, which is also the case when to the former oil some alcohol is added. Hager's Centr. Halle, 1869, 49.

Oil of Mustard Seed. Hager met a sample of essential mustard oil adulterated with castor oil and oil of cloves, and another one with bisulphide of carbon. According to Hager, one drop of the pure oil must render a clear solution with fifty drops pure sulphuric acid, as well as with a mixture of four drops of water and sixteen drops of alcohol. Hager's Centr. H. 1869, Nos. 9 and 12.

Volatile Oil of Peru Balsam. M. Kraut found that this oil may be separated by distillation under reduced pressure, and in an atmosphere of carbonic acid gas, into three different oils of various boiling points and composition. Ber. d. Deutsch. Chem. Ges. No. 8., 1869.

OINTMENTS AND PLASTERS.

Binert recommends the use of *paraffin* as a *substitute for spermaceti* and *wax* in ointments and pomades. One part to four or six parts of lard are proper proportions. Hager's Cent. H. ix. 115.

The Schweiz. Wochensch. f. Ph. 1867, 879, calls attention to the fact that the ointment of potassium iodide keeps for a long time undecomposed when a trace of sodium hyposulphite has been added to the potassium iodide. This addition is said to be entirely harmless, but has to be omitted when any free iodine has to be added to the ointment.

Belladonna Plaster. John Palmer suggests the preparation of this plaster from the extract of belladonna root with soap-

plaster. Three parts of the latter with one part of the former yield an effective and stable plaster. London J. Ph. 1869.

Burgundy Pitch and Caoutchouc Plaster. M. Lorigne suggests the combination of 85 parts of caoutchouc, cut in thin pieces and reduced to a semifluid consistence, with 13 parts of petroleum in a close vessel, with 300 parts of Burgundy pitch and 25 of white wax, previously melted and gradually admixed. Finally, three parts of glycerin are added. Journ. de Ph. et de Ch., Feb. 1869.

Carbolic Acid Plaster. Jos. Hirsh, in the Chicago Pharm., suggests the carbolate of glycerin, which, with isinglass, forms an even mixture, capable of being spread upon cloth, tissue paper, etc.

Thos. E. Jenkins suggests, as a plastic agent for the application of carbolic acid in surgical dressings, a glazier's putty, prepared by well kneading 47 parts of prepared chalk with 17 parts of a mixture of 4 parts glycerin and 1 part carbolic acid. A. J. Ph., July, 1869, 292.

W. Martindale, recommends the following carbolic acid plaster:—9 parts shellac are heated with 1 part crystallized carbolic acid till the shellac is melted; then 2 parts acid are added and thoroughly mixed, strained and spread to the thickness of about one-fiftieth of an inch. The surface of the plaster is then lightly brushed over with a solution of gutta-percha in 30 parts of its weight bisulphide of carbon. London Ph. J., Jan. 1869, 391.

PILLS.

Pill Machine. M. Bushby has constructed a simple machine for manufacturing pills, consisting of two rollers, fitted with adjusting screws, which form the pill-mass into sheets of the desired thickness. The sheet then passes into a self-acting feeding apparatus, bringing it under the edge of a knife which cuts off a bar and carries it between semi-circular grooves, which, revolving rapidly, cut and form it into pills; another instantly follows, the shower of pills being continuous as long as the sheet is supplied. About 1000 pills per minute may be made by the machine; it can, however, be made capable of making far greater quantities if required. London Chemist and Drug., Nov. 14, 1868. Am. J. Ph. Jan., 1869, 63.

(In recommending this useful contrivance, the Editor of a British Pharmaceutical Periodical thinks the following suggestions congruent with the enlightened views of modern pharmacy: "we are inclined to think that a little mysterious machinery about a chemist's shop, often adds to his reputation as a scientific man, and helps to maintain the dignity of the profession.")

Thos. E. Jenkins, in Am. J. Ph., March, 1869, 119, recommends *glycerin as an excipient for pills*.

Calomel in Pills. It is well known that mercurous chloride, when in continuous contact with many organic substances, suffers a gradual decomposition into the mercuric chloride and metal. In most pills containing calomel the conditions are present which favor such a decomposition. Practitioners as well as pharmacutists should bear this fact in mind, since such pills, when ready kept or even recently compounded, are liable to produce very serious consequences. Hager's Centr. Halle, 1869, No. 6.

POWDERS.

Myrrh. M. Rode calls attention to the fact that myrrh should not be dried by warmth, since it looses a good deal of its essential oil. Myrrh, like other gum-resins, can readily be powdered during the cold season. N. Jahrb. d. Ph. xxx, 202.

Rhubarb. Opwyrd met with commercial powdered rhubarb adulterated with turmeric. In order to find out such a fraud, the powder is triturated in a mortar with some watery solution of boracic acid; pure rhubarb remains unchanged, whilst, when containing turmeric, it turns reddish-brown after a few minutes when containing 10 per cent. or more turmeric, or more gradually when it contains less. Journ. de Ph. d'Anvers, xxiv, 324.

(Drugs like opium, ipecac, jalap, rhubarb, scammony, etc., upon the goodness of which so often depends the weal and frequently the life of our fellow men, ought not be bought powdered. Unhappily many pharmacists are only dispensers, or, are by the circumstances, hindered in preparing the usual pharmaceutical preparations; but such important drugs, at least, should be powdered by each who deliberately shares the great responsibility which rests upon the dispensing pharmacist.)

Liquorice Extract. The Journ. de Pharm. d'Anvers calls attention to the fact that, in France, black liquorice powder has lately been found considerably admixed with charcoal powder, evidently not by the manufacturer, but by druggists. They rely upon the excuse that the extract, when dried, has been somewhat charred by overheating. Ph. Zeit. 1869, No. 7.

Hydrargyrum cum Creta. J. P. Remington examined eight samples of American and one of English manufacture. The relative quantities of the mercurous and mercuric oxides contained therein were so much at variance, that the disfavor with which this preparation has met lately is not groundless. Proc. Am. Ph. Ass. 1868, 379.

(Mercurial and similar important galenic medicines should be as much as possible of stable and constant composition, and preparations of any uncertainty with respect to their composition or strength, and subjected to accidental changes, as is the case with hydrargyrum cum creta and with blue mass, had better be discarded from our Pharmacopœia.)

SOAPS.

Manufacture of Soaps. It is a well known fact that, by an indirect process, a potassa soap may be converted into a soda soap; this is done by adding to a boiling solution of potassa soap a very strong solution of sodium chloride; and it is generally taken for granted that, if enough of the latter has been added, the potassa soap is converted, at least chiefly, into soda soap, while potassium chloride is formed. Dr. Oudemans ascertained how much of the potassa is substituted by soda. The results of his researches are principally these:—By the process as executed on the large scale, and yielding excellent products, only a little more than half = 53·7 per cent., of potassa is replaced by soda, while 46·3 per cent. of potassa are left along with the other alkali combined with fatty acids in the crude soap. Journ. f. pract. Chem. 1869, No. 1.

Estimation of the quality of Soap. Prof. Schultze, of Rostock, starting from the view, the better the soap the less thereof will be required for the entire unhardening of water, employs the reverse of Clark's process, in the following man-

ner:—He prepares a solution of lime in water containing excess of carbonic acid, so that a litre of water contains exactly 1·6 grms. of lime. Of this fluid he takes 3 c.c. (containing accordingly 4·8 milligrms. of lime,) and adds 20 c.c. of water, and a small quantity of soda solution; he further applies an aqueous solution of 5 grms. of soft soap in 100 c.c., or of the same quantity of solid soap in 200 cc. of water, and adds of these solutions from a burette to the aforesaid lime solution until a lather is completely formed. The smaller the quantity of soap solution required for this purpose the better, of course, the soap is, and it is easy to calculate how much of the soap solution has been required for one part, by weight of lime. A perfectly pure soap, however, will be required, for comparison's sake.

SALTS.

The so-called granular citrate of magnesia contains, according to F. C. Clayton, not always citric acid as shown by the analyses of several chemists. The author gives, in the London Ph. J., Oct. 6, 1868, 195, a formula and mode of preparation.

SPIRITS.

Sweet Spirit of Nitre. J. W. Mill recommends the preparation of sweet spirit of nitre as well as other pharmaceutical preparations. He describes an apparatus and the following process:—18 fluid oz. alcohol of at least ·835 sp. gr., and 3 fl. oz. nitric acid, sp. gr. 1·42, are introduced into a generating bottle, as described by the author, with a little clean sand; when the apparatus is properly adjusted, heat is applied. As soon as the reaction begins, the water bath is withdrawn and the reaction is allowed to proceed spontaneously. During the process 8 fl. oz. nitric acid are added through the safety tube in small portions, so as to maintain the reaction in moderate activity. The resulting distillate (about 10 fl. oz.) is shaken with half oz. potassium carbonate, and then with twice its volume of water. After depositing, the mixture is separated by means of a separating funnel; the supernatant spirit (about 5 fl. oz.) when properly collected, is mixed with enough alcohol to make the mixture measure 100 fl. oz., or to such a point that the product will answer

in ethereal strength to that prescribed by the U. S. Pharmacopœia. Chicago Pharmacist, Sept. 1868.

Detection of Methylic Alcohol. Since the test of H. N. Draper, for the detection of small quantities of methylic alcohol in sweet spirit of nitre is not reliable, John T. Miller employs the oxidation test after treating the sample in the following manner:—About 1 oz. of the sample is shaken with 20 or 30 grains of anhydrous potassium carbonate, or so much as is dissolved, then pour off the supernatant spirit. This serves to neutralize acid and remove water. Introduce half a fluid-ounce of the spirit into a small flask; add 150 grains of anhydrous calcium chloride in powder and stir; then, having connected the flask with a condenser, place it in a water bath, and distil a fluid-drachm and a half. The distillate contains nearly the whole of the nitrous ether and other interfering substances. Now add to the contents of the flask a fluid-drachm of water, and draw over the half drachm of spirit required for testing. Add to it the usual oxidizing solution composed of 30 grains of red potassium bichromate, 25 drops of strong sulphuric acid, and half an ounce of water; let the mixture stand and distill half a fluid oz. Treat the distillate with a slight excess of sodium carbonate, boil it down to 2 fl. drachms and drop in cautiously enough acetic acid to impart a faint acid reaction; pour the liquor in a test-tube, add two drops of diluted acetic acid and one grain of argentic nitrate in half a drachm of water; then boil gently for about two minutes. If the spirit is free from methylic alcohol the solution darkens, and often assumes transiently a purplish tinge, but continues quite translucent, and the test-tube, after being rinsed out and filled with water, appears clean. But if the spirit contains only one per cent. of methylic alcohol the liquid turns first brown, then almost black and opaque, and a film of silver is deposited in the tube. When the sample is methylated to the extent of 3 or 4 per cent., the film forms a brilliant mirror. London J. Ph., Feb. 1869, 465.

SUPPOSITORIES.

J. B. Moore, in continuation of his valuable contributions to the preparation of suppositoria, suggests, as the best mode of

preparing assafoetida suppositoria, to rub the assafoetida, previously purified by solution in alcohol with some liquor potassæ, (7 drops to each drachm) until well mixed, and then gradually add the oil of cacao. A. J. Ph., Sept. 1868.

. SYRUPS.

The objectionable property of several pharmaceutical syrups to deposit sugar in crystals is obviated by the addition of about 1 per cent. of glycerin, according to a communication to Schweiz. Wochensch. f. Ph., 1868, p. 89.

Fruit Syrups. Hager suggests the following test for ascertaining if fruit syrups are colored with aniline dyes:—Add a solution of sodium hydrate in excess, and shake with an equal volume of ether. Decant the ethereal mixture, mix with one-third its volume of water, and add a few drops acetic acid. If the syrup is colored with fuchsin the watery layer is colored more or less, while when the syrup is genuine neither of the layers assumes any color. Hager's Cent. Halle. 1868.

Syrup of Lactucarium. P. W. Bedford suggests for the preparation of this syrup the same formula as given for syrup of tolu in the U. S. Pharmacopœia of 1860, with a slight modification. Its resulting syrup has a dark transparent appearance. Proc. A. Ph. Ass. 1868, 400.

Syrup of Ferrous Iodide. I. Hugès, after a series of experiments, avers syr. ferri iodidi, and all syrups containing iron, undergo no gradual decomposition and change when they are made thicker than usual, when they are kept at a moderate temperature and not corked, but in bottles capped with vegetable parchment. Lond. J. Ph., Nov. 1868, 320.

I. H. Holloway, however, in a communication to the same Journal, Dec. 1868, 365, thinks these recommendations of questionable value, and suggests, in order to prevent oxidation or to restore its original state, to expose it frequently to the sunlight.

M. Jeannel, in the Journ. de Pharm. et de Chim., Nov. 1868, recommends for the same purpose the addition of a small quantity of tartaric acid.

Syrup of Tar. J. B. Moore recommends the following formula for tar syrup:—1 oz. tar, 1 oz. sugar and 3 oz. mag-

nesium carbonate are gradually reduced to a pulverulent mixture; this is triturated with 4 oz. of a mixture of 2 oz. alcohol and 6 oz. water. After straining and pressing, the residue is again triturated, first with 1 oz. sugar and then with the remaining menstruum. After again straining and pressing, the dregs are triturated and packed in a glass-funnel prepared for percolation; then the liquids obtained are first allowed to pass through the percolator, and afterwards so much water as will be required to make the whole, after addition of 10 oz. sugar, one fluid pint. A. J. Ph., Jan. 1869, 6.

Syrup of Violets. In the Journ. de Chim. et de Ph. 1869, the following formula for preparing the syrup from the dried violet flowers is recommended:—In $3\frac{1}{2}$ oz. infusion from half drachm of violet flowers and a slight trace of citric acid sufficient sugar is dissolved to make a syrup.

Aniline Dyes for Coloring Syrups. Recently the use of these colors, which frequently contain arsenic acids or other poisonous admixtures for dying syrups, has been cautioned.

TINCTURES.

Specific Gravity. W. Laird, in a paper read before the Norwich meeting of the Brit. Ph. Conf., calls attention to the specific gravity of the tinctures, and gives the specific gravity of some of the much employed tinctures of the British Pharmacopœia.

(The Prussian Pharmacopœia contains a schedule giving the exact specific gravity of all the most important tinctures, liquors, spirits, of ether and chloroform at all the degrees of the thermometer during the seasons of the year.)

Tinctures by Percolation. R. M. Atkinson read before the Leed's Chemist's Association a paper on tinctures and their preparation by percolation. He stated that the variation in the specific gravity of properly made tinctures is but slight. For tincture of conium, digitalis and similar ones, Mr. Atkinson recommended the use of bottles of non-actinic glass, since he thinks them acted upon by light. Mr. Atkinson's laborious report is accompanied by a table, giving the amount of alcohol required for each pint of tincture, with specific gravity, weight of solids

ordered by the Brit. Pharmacop., weight of marc pressed, and weight of marc dried. London Ph. J., March 1869, 529.

Tinctura Iodi Decolorata. Chas. O. Curtman suggests, for the preparation of a colorless substitute for the official alcoholic solution of iodine, a preparation obtained by the following process:—The solution of iodine is decolorized by the addition of a surplus of ammonia and afterwards by a careful addition of as much hydrochloric acid as to leave the solution but feebly alkaline. The ammonium chloride is nearly insoluble, and deposits, whilst the ammonium iodide and the iodate remain in solution. A. J. Ph., July 1869, 345.

(It might be questionable, at least, if such a solution of iodine salts can be considered, in a therapeutical respect, equivalent to a solution of iodine; for the chemist it is entirely different.)

WINES.

Test for Wines. Facen recommends, as a reliable test for the genuineness of wines, the shaking of a sample with its equal weight of powdered manganic oxide. If after a quarter of an hour the filtrate is bright and discolored, the color of the wine was natural, whilst artificially colored wines remain more or less colored. Hager's Cent. Halle, ix, 213.

(Wittstein contradicts the reliability of this test. Viertelj. Sch. f. Ph. xviii, 241.)

A. Phillips states that sesquichloride of iron imparts to the juice of black cherries, huckleberries and mallows a violet color with a reddish or bluish tint. Pure red wine is colored red brown. The amount of free acid in the wine influences the shade of the color. The bluish gray color imparted by artificially colored wines, according to Böttger, to sponges previously treated with muriatic acid, is probably due to their retaining a trace of ferric chloride. Ber. d. Deut. Chem. Ges. 1, 81.

Wine of Colchicum. James T. King examined a sample of English colchicum wine, and failed to find any colchicin in it. Am J. Ph., Nov. 1868, 508.

(Wine of colchicum and similar preparations of such an importance to the practitioner, should be made from drugs of unobjectionable quality by the pharmacist, and should not be

bought, at least not unless the dispenser can be fully satisfied as to the quality and strength of the drug, and accordingly of the preparation.)

MISCELLANEOUS.

Mustard paper. Since Rigollet has introduced the mustard paper; it has met with success, and has been the subject of several communications to the pharmaceutical periodicals. It is prepared by fixing upon the paper finely powdered mustard seed, previously freed from its fat oil by bisulphide of carbon.

A paper known as Cooper's Engl. Mustard Paper is, according to Hager, (Centralh. 1869, No. 11,) a paper only saturated with a concentrated tincture of euphorbium and capsicum.

Litmus Paper. Since sized litmus paper is more delicate than unsized, A. Varhu suggests the use of a paper sized with isinglass solution. W. Casselmann, finds most note-paper answering the purpose. Zeitsch. f. anal. Chem. vii, 466.

Marking Ink. The tissue, linen or cotton to be marked are moistened with a solution of one part of hypophosphite of soda and two parts of gum arabic in 16 parts of water. The marking is then done with a quill-pen and a solution of one part argentic nitrate, six p. gum and six p. water. Cosmos. No. 23, 1869.

One drachm of aniline black is rubbed up with 60 drops strong hydrochloric acid and $1\frac{1}{2}$ oz. alcohol. The resulting liquid is then to be diluted with a hot solution of $1\frac{1}{2}$ drachms of gum arabic in six oz. water. This ink does not corrode metallic pens, is affected neither by concentrated mineral acids nor by strong lye. If the aniline black solution be diluted with a solution of $1\frac{1}{2}$ oz. shellac in 6 oz. of alcohol, instead of with gum water, an ink is obtained which, when applied to wood, brass, or leather, is remarkable for its extraordinary deep black color. American Artisan.

Ink for writing on Glass. A solution of fluoride of ammonium is recommended as furnishing a ready means of writing with a pen of any kind upon glass, and is especially adapted for labelling bottles, etc. Amer. Artisan.

Liquid Glue. M. Knaffl recommends, in Wochensch. d. oest.

Gewerb. Ver., the following liquid glue :—three p. of glue broken into small pieces are covered with eight parts of water, and left to stand for some hours ; half p. of hydrochloric acid and three-fourths p. of zinc-sulphide are then added, and the whole exposed to a temperature of from 81° to 89° C., during ten or twelve hours.

Cements. An acid proof cement for protecting corks from the destructive action of vapors is suggested by F. R. Fairthorne. The corks are first soaked for some hours in a solution of sodium silicate, consisting of one p. commercial concentrated solution to three parts of water. Then, before use, the corks are covered with a putty made from powdered glass with a concentrated solution of water glass, and are afterwards washed with a solution of calcium chloride. Journ. Franklin Inst., April, 1869.

Hard and unyielding Cements, resisting red heat as well as boiling water, are obtained by mixing 4 to 5 parts dry clay, 2 p. iron-filings, 1 p. manganic peroxide, half of rock salt, half of borax, and the necessary quantity of water. The cement has to be applied immediately. Blätter für Hand. u. Gewerbe.

Equal parts of sifted manganic peroxide and zinc-white, mixed with enough soluble glass to form a thin paste, yield a good cement. Ch. N. A. R., Nov. 1868, 252.

Cement for Metals and Stone. M. Pollack recommends a mixture of litharge and glycerin. Ch. N. A. R., Aug. 1869, 95.

Lucifer Matches. H. Fleck, after a series of experiments, suggests the substitution of sodium for phosphorus, since minutely divided sodium becomes inflammable in contact with explosive substances when moistened. The sodium is reduced to powder by wetting and shaking in paraffin ; it is then mixed with the following substances, which are each triturated previously with some petroleum :—4.65 per cent. sodium, 61.39 per cent. potassium nitrate, and 33.96 per cent. antimonious sulphide. The mixture is made up to a paste, previously soaked in petroleum. A. J. Ph., Mai, 1869, 257.

Silvering Glass. Browning's excellent process for silvering glass is reprinted in the March number of the Ch. N. A. R., 159.

Silvering Cast-Iron. M. Böttger recommends the use of a bath prepared by dissolving 15 grms. argentic nitrate in 250 grms. of water, and adding 30 grms. of potassium-cyanide; this solution is then poured into 750 grms. of water, wherein 15 grms. of common salt have been previously dissolved. The cast-iron intended to be silvered by this solution should, after having been cleaned, be placed for a few minutes in a bath of nitric acid of 1.2 sp. grav. just previous to being placed in the silvering fluid. Monit. Scientif. 1869, No. 298.

Tinfoil, having a crystalline surface, and coated with a transparent varnish or with gelatine of various colors, has recently come into large demand. Pusher, of Nüremberg, publishes his process of getting the crystalline surface on the tin. It is done with a solution of 2 parts of tinchloride in 4 parts of hot water, 2 parts hydrochloric acid, 1 part nitric acid. The tinfoil is dipped into this mixture and left until the crystals appear. Small crystals are obtained when the solution is applied cold, larger ones when used hot. The most beautiful specimens of this manufacture are coated with varnishes colored with aniline dyes.

Coloring matter of Wafers. Dr. Furtenbach examined samples of wafers in order to determine their coloring matter. Bright red colored wafers left, on incineration, an ash consisting of plumbic tetra-oxide, barium sulphate and some plumbic sulphate; another sample of bright red color was free of barium sulphate but contained 46.9 per cent. plumbic tetra-oxide. White wafers were colored with barium sulphate, blue ones partly with ultramarine, partly with Prussian blue, but contained in all instances besides these, barium sulphate and in some samples white lead. Pink colored wafers contain carmine lake, alumina being found in the ash; brown colored wafers are tinged with iron ochre; violet wafers were found to be colored with some lac-dye, containing alumina; black ones partly with lamp black partly with harmalin black, which, on incineration, left ferric oxide; green ones are colored with so-called green cinnabar (chromate of lead and Berlin blue mixed,) also with copper and arsenious compounds. Ch. N. A. R. Aug., 1869, 94, from Bayer. Ind. & Gewerb. bl. No. 2, 1869.

Origin of Infusoria. Prof. Bennet, in a lecture on the atmospheric germ theory and origin of infusoria, stated the conclusions to which he had been led by observations conducted by him for a number of years and which have also an interest for pharmacy. He considers that the infusoria, vegetable and animal, which we find in organic fluids during fermentation and putrefaction, originate in oleo-albuminous particles, which are formed in the fluids, and which, floating on the surface, constitute the primordial mucous layer of Burdach, the proligerous pellicle of Pouchet. There under the influence of conditions, such as temperature, light, air, chemical exchanges, etc., the lower forms of vegetable and animal life are called into existence. Prof. Bennet has also performed numerous experiments, with a view to determine whether or not it be possible to prevent the rise and development of infusoria in a fluid by means calculated to destroy germs; but they have convinced him that, although means be used sufficient to destroy germs in an infusion and in the air in contact with it, infusoria are developed notwithstanding. Edinb. Med. Journ. & Dental Cosmos. April, 1869, 212.

SECRET MEDICINES.

In Germany, where the sale of secret medicines is prohibited, or at least restricted to a considerable degree, the nuisance of this illicit traffic is effectually met by analysing all such nostrums, and publishing their composition and their real cost price. Referring to Mr. Robbins' striking disclosures on this important subject in his last year's report on the drug market, and considering the increasing importance of this disgrace to American pharmacy, I leave it to the judgment of the members of this Association if the same practice would not work in our country just as effectually, and be, perhaps, the best legitimate means of baffling this growing degeneration of the medicinal trade.

Holloway's Pills. Aloe 40 p., rhubarb 20 p., cassia 5 p., cardamom 5 p., ginger 20 p., crocus $2\frac{1}{2}$ p., Glauber's salt 5 p., potassium sulphate 10 p., conserva rosarum 20 p., water q. s. for 1000 pills. Centr. Halle. No. 5. 1869.

Holloway's Ointment. Yellow wax 20 parts, resina pini alba

25 parts, lard 50 p., olive oil 75 parts. Centr. Halle. No. 5, 1869.

Injection vegetale au Matico par Grimault & Co., Paris. Each bottle contains 4 grains cupric acetate and $4\frac{1}{2}$ oz. matico water. Centralhalle ix, 124.

Papier épispastique supérieur d'Abespeyres is a paper coated with the following mixture: Croton oil 1 part, Japan wax 2 parts. Centralhalle No. 24, 1869.

PHARMACOGNOSY.

DRUGS DERIVED FROM THE VEGETABLE KINGDOM.

LICHENES.

Roccella tinctoria, Ach. J. Stenhouse publishes an interesting report on his researches on some varieties of *Roccella tinctoria*. It contains an improved method for the estimation of the quantity of coloring matter contained in these and similar kinds of lichens. For this purpose, 100 grains of the lichens are to be digested with a dilute solution of caustic soda, which operation is to be repeated. The fluid so obtained is filtered; after filtration it is treated with a solution of hypochlorite of soda of known strength, the addition of which produces a blood-red coloration of the fluid, and this continues as long as any coloring matter is left. From the quantity of the soda solution used the quantity of coloring matter may be inferred. Ann. Ch. & Ph. March, 1869, 296.

FUNGI.

Claviceps purpurea, Tulasne. Mr. Romans, in a communication to the Brit. Pharm. Soc., calls attention to the fact that ergot is so rich in sulphate of potassa as to give slight crystallizations when the watery extractions have been evaporated, and then are mixed with alcohol and red oxide. Ph. J. March, 1869, 513.

H. Höhn prepared from the fatty oil expressed from ergot, cholesterin, as yet only found as a product of animal organization, in the bile, the brain, the blood, and in the biliary calculi. Arch. Ph. Jan., 1869.

Berlandt (Arch. Ph. 182, 282) states that the usual methods to determine the presence of ergot in rye or wheat flour are insufficient for forensic cases. They depend, as well known, mostly upon the evidence of the formation of propylamin, which is recognized by its characteristic odor. Berlandt thinks it necessary to verify this reaction by a chemical proof also, and suggests a method which is based upon the known decomposition of propylamin at a high temperature into methane (marsh gas) and hydrocyanic acid.

ALGÆ.

Chondrus crispus, Stackh., Grev. According to the "Amer. Exchange and Review," Irish moss has been used for some time as a substitute for glue, isinglass, albumen, etc., for sizing paper, cotton, cloth, etc., and for clarifying and other purposes in arts and trades. Am. J. Ph. March, 1869, 128.

The difficulty of freeing some vegetable mucilaginous substances from nitrogenous and inorganic admixtures is well known. In order to effect this, a repeated precipitation is required. M. Blondeau published in the J. de Ph. & Ch. xv, 37, the results of his researches on the jelly of Irish moss, and attributed to it the following composition:

C,	.	.	.	.	.	21.80
H,	.	.	.	.	.	4.87
N,	.	.	.	.	.	21.36
S,	.	.	.	.	.	2.51
O,	.	.	.	.	.	49.46
						<hr/>
						100.00

Since this pretended formula has found its way into several journals, it is proper to compare it with the researches of Flückiger and Obermaier (N. Rep. Ph. xvii, 348), which coincide with the former researches of Marchand (Ann. de Ch. & de Phys. viii, 321), and which give the percentage of nitrogen and ashes, for similar algæ also:

Laminaria digitata. Lam. saccharina. Fucus serratus. Fuc. siliculosus.				
N,	1.07	1.75	1.25	1.80
Ashes,	17.82	13.85	18.46	11.38
Fucus vesiculosus.				
N,	.	.	1.22	
Ashes,	.	.	15.09	

Chondrus crispus contains, according to Flückiger and Obermaier :

N,	1.012
Ashes,	15.06

According to the same authorities, *Chondrus crispus* contains some per cent. sulphates, but not any other sulphur compound.

Flückiger and Obermaier prepared the mucilage of the Irish moss in as pure a state as possible ; it forms a light yellow powder ; in water it swells up considerably, and dissolves in a sufficient quantity to a clear liquid which does not change litmus paper.

The mucilage of *Chondrus crispus* differs in its deportment to the usual reagents essentially from arabin, starch, cellulose, and the similar hydrocarbons ; it seems to come nearest to the mucilage of the marshmallow root. N. Rep. Ph. xvii, 348.

MELANTHACEÆ.

Veratrum viride et album. Oulmont examined the physiological effects of both, and found that the latter is distinguished by greater violence upon the digestive system, and by greater rapidity of action. He also examined the action of veratria, with the result that it appears not to be the only active principle, since *Veratrum viride* deprived of the alkaloid and administered to animals, had the same therapeutical effect as the natural drug. N. Rep. Ph. xvii, 177. A. D. C. Oct. 68, 279.

ASPARAGEEÆ.

Convallaria majalis, L. Dr. Marmée describes two glucosides obtained from the mayflower : convallarin and convallamarin. The former is but little soluble in water ; the latter more freely. They cause vomiting when taken internally in small doses ; in larger ones they seem to be energetic heart-poisons, producing paralysis of the heart. Am. J. Med. Sci. April, 1869, 501.

SCITAMINEÆ.

Maranta arundinacea, L. This indigene of Surinam has successfully been cultivated, as is well known, on the Bermudas and West India Islands ; for some years it has also been cultivated by German settlers in Dona Franciska, Blumenau, and other Ger-

man settlements in Brazil. This Brazilian *Maranta* starch is equal to the best of the Bermudas or of St. Vincent, and is not to be confounded with the "Brazilian arrow-root," which is the starch of *Manihot utilisima* and *Manihot Aipi*, Pohl, which frequently are met with in commerce as *Maranta* arrow-root, from which, however, they essentially differ. These two plants of the Euphorbiaceæ are extensively cultivated in South America. A practised eye and the microscope are the best means of ascertaining the origin of the arrow-root-starch. In the European market there occurs sometimes an arrow-root which is a mixture of the starch of *Maranta* and of the *Manihots*, and of *Curcuma leucorrhiza*, Roxb. J. p. Ch. 105, 121. Arch. Ph. 184, 257.

IRIDEÆ.

Crocus sativus, L. Weiss has instituted a series of researches on the stigmas of saffron which have resulted in important information on this interesting drug. Its red coloring principle, formerly called polychroit, and since 1862, by Rochleder, crocin, is, according to Weiss, a glucoside which has as yet not been obtained pure. Acted upon by acids it splits into glucose, into an essential oil, and into a new coloring principle. The slight traces of oil and sugar contained in the stigmas have probably their rise in the ready decomposition of the glucoside. For the same reason, all attempts to obtain this substance pure have as yet failed. Weiss retains the old name of polychroit for the glucoside, and transfers the name crocin to the coloring matter produced by its splitting. J. p. Ch. 101, 65.

An ingenious *adulteration of saffron* in France has been brought to light by Caroz, in the Journ. de Ch. Méd. 5 ser. iv. 202, which perhaps may be worth pointing out to druggists and pharmacists. The young shootlings of a *carex*, probably of *carex pulcaris*, or *carex capillaris*, are dried, and then impregnated with tincture of saffron, in addition, perhaps, with some sugar, honey, or glycerin. They are then mixed with the saffron used for making the tincture, and are brought into commerce. Such an article has even been at the late Paris exhibition, and was bona fide bought by French druggists. The adulteration is easily detected by a practiced eye, and very distinctly by the microscope.

OUPULIFERÆ.

Quercus. W. Smith examined the galls produced upon oaks in England, and found that they contained 26·71 per cent. gallo-tannic acid, against 61·65, the per centage of Aleppo galls. Ch. N. A. R. Mai. 1869, 251.

EUPHORBIACÆ.

Euphorbia resinifera, Berg. The gum-resin of the euphorbia species has been the subject of elaborate examination by Flückiger, with the following result in respect to its composition:

Euphorbon . . .	22·0	Chloride of Sodium	1·2
Neutral Resin . .	38·0	Potassa.	} traces.
Bassorin . . .	18·4	Magnesia.	
Malonate of Lime	9·9	Phosphoric Acid.	
Malonate of Soda	2·5	Silicic Acid.	

Flückiger did not find arabin, cerin, myricin, caoutchouc, essential oil and other substances, mentioned in former analyses. Euphorbon was especially the subject of examination. It is colorless and odorless, insoluble in water, slightly soluble in diluted, but freely in strong and in warm alcohol. Ether, benzin, amyl-alcohol, chloroform, acetone and glacial acetic acid dissolve it freely. Its composition is represented by the formula $C_{22}H_{44}O_2$. Wittst. Viert. Jahr. Ph. xvii. 82, 102.

Siphonia elastica, L. Caoutchouc, as well known, has a peculiar odor, obnoxious to many persons, which is stronger when warm. Müller states that caoutchouc and articles made thereof can be completely deprived of this smell when they are packed in boneblack, protected by wood or wrapped in paper and carefully warmed for some time. Zeitsch. d. oest. A. Ver. vi. 392.

Mercurialis annua and perennis, L. In 1863 E. Reichard discovered in these plants the volatile alkaloid mercurialin. After continued studies on this substance, Reichard arrived at the interesting result that mercurialin seems to be isomeric with methylamin= CH_3N , although they differ somewhat in their properties. Reichard gives, in the Journ. p. Ch. Civ. 301, the concise mode of the preparation of mercurialin and a number of its salts, and describes their properties.

POLYGONEÆ.

Rheum. Dr. E. R. Squibb read before the Philadelphia meeting of the Am. Ph. Ass. a critical review on the present unsatisfactory supply of rhubarb in the American market. Proceed. 1868, 452.

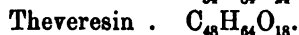
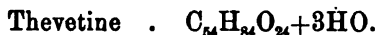
In France *powdered rhubarb root* has been found *adulterated* with turmeric. When such a powder is triturated in a mortar with an alcoholic solution of boracic acid, it becomes red-brown immediately when containing more than ten per cent. turmeric; when less, the change occurs more gradually. Rhubarb powder does not change its color with the solution. Journ. de Pharm. d'Anvers. xxiv. 324.

FRAXINEÆ.

Fraxinus ornus, L. M. Buignet states, in the Journ. d. Ph. et. d. Ch. 4 ser. vii. 401, that manna canellata contains twenty per cent. dextrin, and that the commercial kinds of manna are still richer; the proportion of dextrin to sugar is as 2:1, and is the same as dextrin and sugar occur in the transformation of starch. Buignet concludes that both have their origin from the starch formed in the living plant.

APOCYNEÆ.

Thevetia neriifolia. The bark and the seeds of this tree, indigenous in the West Indies, New Granada and Peru, are considered a powerful febrifuge. The bark seems, as yet, not to have been examined. The seeds contain, according to DeVry, nearly seventy-five per cent. of an almost colorless fixed oil, and besides a crystallizable glucoside—thevetine—which, when acted upon by luted acids splits into glucose, and a resinous substance called theveresin. Both are, according to the experiments of M. Blas, powerful poisons, and are represented by the following formulæ:



Journ. de Ph. & Ch. Mai. 1869.

Strychnos nux vomica, Willd. In order to determine the presence of strychnia in nux vomica, or the beans of Saint Ignatius, a piece of the sample is soaked in aqua ammoniæ and then

dried at a moderate temperature. If the piece is then dipped into some amyl-alcohol in a test tube and warmed, a few drops of the liquid, when evaporated on warm porcelain, yield with sulphuric acid and bichromate of potassa the known beautiful reaction of strychnia. Ph. Centralh. 1869, No. 15.

SOLANÆÆ.

Atropa belladonna, L. Dr. D. W. Horment avers that a solution of two drachms extract of belladonna in a fluid ounce of water, applied over the breast with a brush, will stop the secretion of milk, and that its application to one breast will suspend its secretory action without affecting the other. Med. Record, Oct. 1, New York.

Cyphomandra betacea. The fruits of this plant, indigenous in Mexico, but cultivated in gardens in Italy, are found to be rich in citric acid. Ch. N. A. R. 1869, 161.

CONVOLVULACEÆ.

Convolvulus scammonia, L. H. S. Evans has examined twenty-three samples of commercial scammony on their percentage of resin soluble in ether. He found it ranging from $59\frac{1}{2}$ to $96\frac{1}{2}$ in so-called virgin scammony, and from $47\frac{1}{2}$ to $11\frac{1}{2}$ in Aleppo and low scammony. Samples of powdered scammony yielded from $72\frac{1}{2}$ to $18\frac{1}{2}$ per cent. of resin. This resin has as yet not been submitted to further examination. Inasmuch as it is considered to be the effectual constituent of the drug, and consequently a standard for its quality, Evans' statements are a new evidence of the uncertainty of this drug, which has brought it into disfavor. Evans therefore recommends the preparation of the resin as a definite preparation. Proc. Brit. Ph. Confer. 1868, 64.

LABIATÆ.

Mentha piperita, L. M. Roze, in a pamphlet—"La menthe poirée, sa culture en France, ses produits, etc. Paris, 1868,"—has published a comprehensive and very instructive essay on the whole subject of the culture of the peppermint plant, which may prove of good service to the peppermint growers in the United States.

SCROPHULARINÆ.

Digitalis purpurea, L. S. P. Duffield examined three samples of this drug, and found that :

- 1000 parts of the English yielded 9.08 parts digitalin ;
- 1000 parts of the German yielded 8.07 parts digitalin ;
- 1000 parts of the American yielded 9.30 parts digitalin.

The English and the German were the leaves only, while the American specimen was from the Shakers of Mt. Lebanon, containing, in their usual style, leaves and stalks. Proceedings, 1868, 413.

ERICACEÆ.

Ledum palustre, L. J. Trapp prepared large quantities of the essential oil of the leaves and flowers of *Ledum palustre*. It forms a crystallized mass like congealed oil of anise, and consists of about equal parts of elæopten and a solid stearopten, which, when purified by recrystallization from its hot alcoholic solution, forms white shining needles of great beauty. When acted upon by sulphuric acid they assume a red-brown color; nitric acid does not color them, but in addition with one drop of sulphuric acid produces a fine purple color; fuming nitric acid brings on this reaction immediately. When one drop ferric chloride liquor and a few drops sulphuric acid are added to a solution of the stearopten in chloroform, a beautiful red reaction ensues; in contact with the air this color gradually changes to green, and at last to brown. Ph. Zeitsch. f. Russl. Sept., 1868.

RUBIACEÆ.

Cinchonas.

Culture of Cinchonas in East India. On this important subject Daniel Hanbury, in his opening address to the Norwich meeting of the British Pharmaceutical Conference, made the following statements: The Hollanders have first endeavored to transplant and cultivate the Cinchonas in the East India colonies. To their experiments, failures, and errors, the present success of this important culture is partly due. The first successful attempt was made in 1852 in Java; the plantations prospered, and were considerably extended in 1854, when the British Government took the matter actively in hand. At present the chief planta-

tions in British India are those on the Neilgherry Hills, near Madras, the most elevated mountain range in India southward of the Himalaya. It appears that in May, 1866, the number of *Cinchona* plants in the government plantations in this locality was 1,233,645, of which nearly 300,000 belonged to the species yielding red bark, 758,000 to that affording pale or crown bark, and 37,000 to *Cinchona calisaya*. This, however, indicates by no means the full extent of *Cinchona* culture on the Neilgherries, since there were in addition considerable plantations belonging to private individuals. From Mr. Broughton's report, published in April, 1867, it appears that the number of plants of the red bark in the government plantations in that locality was at that date 800,000, which is an enormous increase within but one year. Other plantations have been formed in Wynaad, Coorg, on the Pulney Hills, and in Travancore, in British Sikkim, in the Kangra valley in the Punjab, and at Mahabaleshwur, in the Bombay Presidency. In Ceylon the success that has attended the introduction of the *Cinchonas* has been most marked. From the Himalaya the accounts are no less promising; there are now five plantations for the cultivation of *Cinchona*, with an aggregate total in April, 1867, of more than 1,558,000 young trees, of which a large proportion belong to the species which furnish what are called the crown and the red barks.

But however rapid and vigorous the growth of the *Cinchona* in India, the culture of the tree would avail but little unless the bark were as rich in alkaloids as that produced in South America. At the outset of the enterprise many persons capable of judging had considerable doubt as to the results. From the recent numerous analyses of Howard, De Vry, Broughton, and others, it is however evident that the percentage of alkaloids in the bark grown in India may even exceed that obtainable from the same sort of bark grown in its native country. Another point worthy of notice is that the proportion which one alkaloid bears to another varies extraordinarily in the same species,—sometimes quinine predominating, sometimes the less valuable cinchonine or cinchonidine. We are as yet to a great extent ignorant of the causes of this variation, but they will to all appearance become manifest, as is already the fact that the rapid

reproduction of the bark and its richness in alkaloids is favored by coating the roots and stems with moss after the removal of the bark. Proc. Brit. Ph. Conf. 1868, 9.

Howard and De Vry have continued their studies on the *Cinchonas* cultivated in the Indian Archipelago. A comparison of former and recent analyses furnishes sufficient evidence that the percentage of alkaloids of the bark of the roots and of the stem is subject to slight variations, but that in most cases the bark of the root surpasses that of the stem in alkaloids. But this seems to be the case only with the transplanted and cultivated *Cinchonas*. N. Tijdsch. Ph. in Nederl. 1868, 193.

Culture of the Cinchonas in Jamaica. The introduction and acclimatisation of the *Cinchonas* on the island of Jamaica has been successfully carried on since 1867. Half-yearly Comp. Med. Sci. Jan., 1869, 55.

Culture of the Cinchonas in Algeria. The attempts which have been recently made to introduce into Algeria the cultivation of the *Cinchona* trees will to all appearance be attended by success. Analyses of the bark thus cultivated have shown that the alkaloids are quite as abundant in these specimens as in others coming from the usual sources. Cosmos, 1869.

Culture of the Cinchonas in California. The culture of *Cinchonas* on the slopes of some of the Californian sierras has been the subject of repeated consideration by the Sacramento Medical Society, which pledged its support to every effort to endeavor to find a proper habitation for the *Cinchona* trees in California, provided the requisite plants or seeds are furnished by the Agricultural Bureau at Washington. Pacif. Med. and Surg. Journ. Feb., 1869.

Assay of Cinchona Barks. Hager, who has given one of the best methods for testing the quality of opium (Ph. Centr. Halle. 1868, 1 & 2) suggests the following method for assaying the *cinchona* barks, which has the advantage over other methods, that it takes only about six to eight hours, requires only a small sample, and is very correct in its results: 10 grammes of the powdered sample are boiled for quarter an hour with about 130 grm. water, to which have been added 20 drops of potassa lye; then

15 grm. diluted sulphuric acid are added, and the boiling continued fifteen to twenty minutes. The liquid is then brought on a filter, and the filtrate collected in a graduated cylinder glass. 60 grm. (C. Centim.) are then precipitated with 50 grm. of a solution of picric acid (trinitrophenol) saturated at a medium temperature. After half an hour the precipitate is collected on a tared filter, washed and dried between unsized paper. The picrates of the cinchona alkaloids are as good as insoluble in the menstruum, and in the water used for washing.

From the quantity of this picrate the quantity of the alkaloids in the sample is calculated. Official bark ought to contain 3.5 per cent. alkaloids, which would correspond to 8.24 of the picrates. 10 grm. of the sample, when submitted to this assay, consequently should give 0.824 grm. alkaloid-picrates. Pharm. Centr. Halle. 1869, Nos. 18 & 19.

Another, but more circumstantial test for the quality of cinchona bark is proposed by Dr. Schneider, in *Zeitsch. d. öst. Ap. V. vi. 351*: 20 grm. calisaya, or red bark, and 50 grm. when the sample is pale bark, are powdered and mixed with one-fourth of their weight of hydrate of lime; this mixture is placed in ten times its weight of boiling alcohol of ninety per cent. strength, filtered, and the residue washed with boiling alcohol. The alcoholic solution is acidified with acetic acid, the alcohol removed by distillation, or evaporation, the residue evaporated to dryness, re-dissolved in water acidulated with acetic acid, again filtered, again evaporated to a small bulk, and treated with hydrate of lime. The ensuing precipitate is washed with a small quantity of water, the residue dried, next treated with boiling alcohol, this solution again evaporated to dryness, and the residue weighed. The weight to be obtained from the above named quantities should not be less, for cinchona rubra, than three-fourths of a gramme; for quina regia and fusca not less than half a gramme, provided the barks be of good quality, and the operations conducted with care. Ch. N. A. R. June, 1869. Am. J. P. Jan., 1869.

(This method has two important points which render its practical use of questionable value. The great number of successive operations not only require much time and labor, but

necessarily occasion some loss of the cinchona alkaloids, which loss is considerably increased by the solubility of the alkaloids in the unavoidable excess of hydrated lime.)

Ipecacuanha. For some years past an ipecac root from New Grenada, very similar to the Brazilian, has made its appearance in commerce. M. J. Lefort, Journ. de Ph. Mars, 1869, has subjected this root to comparative tests with the officinal root by preparing the tannates of emetia, which are but slightly soluble. One hundred grammes of the Brazilian ipecac yielded 1.449 grs. tannate of emetia, whilst the equal quantity of the New Grenada ipecac yielded 1.341 grs. average.

In studying the chemical properties of emetia, M. Lefort found that its nitrate is but little soluble in water, so that an aqueous solution of acetate of emetia is precipitated by nitrate of potassa, which precipitate agglutinates into a brown extract like mass soluble in alcohol. An analysis based upon this reaction yielded 1.350 parts nitrate of emetia from one hundred parts of Brazil ipecac, and 1.082 parts from one hundred parts of Grenada ipecac.

These researches prove that the Brazil ipecac is a little richer in alkaloid, and that it seems to contain more of the resinoid odorous matter, and more of the brown coloring matter. As regards the proportion of ligneous fibre in each, one hundred parts of the Brazilian root gave 18.75 parts, and one hundred parts of the New Grenada root 20.01 parts of ligneous fibre. M. J. Lefort comes to the conclusion that, though allied in composition and properties, the New Grenada ipecac should not be substituted for the Brazil root, until perhaps the time should arrive when the latter should become exhausted. A. J. Ph. July, 1869, 305.

PAPAVERACEÆ.

Papaver somniferum, L. The literature on opium, its culture and production, has been greatly enriched by excellent and comprehensive essays.

Contributions on the culture of poppy and the production of opium are—

For Egypt, by Dr. Figari Bey, in the Journ. de Pharm. et de Chim. 5 Ser. vii. 37. The author gives a report on the localities

and mode of poppy culture. The Egyptian opium contains from 8 to 9 per cent. morphine. Its falling into discredit is due to adulteration with mucilage, with the medulla of the fruits of *Zizyphus lotus* and other substances.

The most prominent publication on *Turkey opium* is by Prof. Fayk Bey, of Constantinople, entitled *Monographie des Opiums de l'empire ottoman envoyés à l'exposition universelle de Paris. 1867, Paris.*°

The author gives a full account of the production of opium in those parts of the empire which furnish most opium; he states that the appearance of the drug does not invariably furnish a conclusion as to its quality and strength. Fayk Bey submitted ninety-two sorts of opium from various localities to examination on their percentage of morphia and narcotine and on the quantity of water. This most comprehensive schedule renders it evident that the varieties of poppy furnish opium of various strength in alkaloids; they further show that the proportion between price and quality do not coincide, and that the real value of opium can solely be determined by chemical examination.

The trade of this important drug in Asia Minor and Turkey has hitherto been in a remarkably unsettled state. Only Smyrna has an established opium market, which influences price and has some control on the quality. Constantinople has no emporium for opium; only lately some of the leading houses have made arrangements for a better control of the market.

In Germany the culture of Opium is progressing. Poppy is extensively cultivated there, especially in the Prussian provinces of Brandenburg, Silesia and Saxony, and the production of Opium has frequently been tried. Oscar Desaga has in 1868, in a pamphlet "*Ueber den Anbau des Orientalischen Mohns und Opiumgewinnung auf einheimischem Boden,*" published a lucid exposition of the present state of the culture of Opium in Germany as well as in France, stating all the experiments and their comparatively satisfactory results in regard to the quality of the product as well as to the profitability of the culture. Samples of Opium obtained in the neighborhood of Berlin contained from 8 to 11 per cent. morphia. *Viert. Schrift.* xvii. 481 & A. J. Ph. 1869, July, 811.

In the United States poppy will undoubtedly yield opium of usual strength if properly prepared. The few experiments as yet made have furnished no conclusive results.

Opium adulterated with Lead. Dr. Risk, in Morgan, Ky., reports to the Cincinnati Medical Repertory, June, 1869, that an opium which he bought in a drug store in Cincinnati contained an admixture of five per cent. metallic lead in small particles. See also Amer. J. Ph. 1864, p. 100.

Morphia strength of Opium. There are to be reported from among a number of communications, four valuable papers about the subject from Hager, Jacobsen, Schneider and Rieckher.

Hager's Process :—5 grms. of the powdered dry sample are triturated with 2 grms. calcium hydrate (slaked to dry powder;) the mixture is heated with about 50 grms. distilled water for about one hour, then the whole is transferred to a filter previously wetted, the residuum is washed with warm water until the filtrate shows only a slight yellow color and weighs about 80 grms. This is evaporated to 50 grms., put into a bottle, and, when still tepid, 15 decigrms. ether and 6 drops pure benzene are added and then shaken. (The ether produces the separation and the benzene prevents the adhesion of the morphine on the glass). Afterwards $3\frac{1}{2}$ grms. ammonium chloride in small crystals are added, and when they have dissolved the shaking is continued (when shaken before the crystals have disappeared the morphine adheres to the glass.) The bottle is then allowed to stand for three hours. All morphine is then separated; it is collected on a damp filter, is washed and dried at about 50° C.

A number of comparative analyses evinced that one-tenth of the weight of morphine has to be subtracted, being the average amount of the impurities. Hager's Cent. H. ix, 1.

Jacobsen's process is similar to Hager's; it takes less time and is said to be very exact :— $6\frac{1}{2}$ grms. of the dry powdered sample are triturated with 3 grms. calcium hydrate and as much water as to form a soft pill mass. This is transferred, with so much water that the whole weighs 74.5 grms., into a small retort of 100 to 150 grms. volume and previously tared; the stoppered

retort is then heated in the water-bath to about 90–92° C. for one hour. Then the retort, after cooling, is weighed, the amount of the evaporated water is exactly restored and the liquid is then filtered. The filtrate is collected in a test tube of about one inch in width, and six to seven inches in length, and upon which has been made a mark indicating exactly fifty cubic-centim. distilled water. This volume is generally obtained from the filter; in case it be a little more the funnel is withdrawn when the filtrate reaches this mark. To these 50 cubic-centim. liquid are added, when still tepid, 3 c. centimet. ether and 8 drops benzene. The test tube is corked and shaken, which is continued after the addition of $4\frac{1}{2}$ grms. ammonium chloride in powder. After settling for some hours the liquid is transferred upon a small, damp, tared filter, washed with some water first, then with about 3 grms. chloroform, and, after this has filtered, repeatedly with $1\frac{1}{2}$ grms. chloroform each time. Finally the filter is carefully dried and weighed. The weight of the precipitated morphine from 5 grms. opium, multiplied by 20, gives the percentage of this alkaloid. *Nieu Tijdschrift v. d. Ph. in Nederland* 1868, p. 361.

Schneider's process for testing the quality of opium:—10 grms. of the dry and powdered sample are treated with a mixture of 150 grms. water, to which 20 grs. of pure hydrochloric acid are added; the residue, after extraction, should not exceed 4.5 grs. weight; to the acid fluid 20 grs. of common salt are added, and the precipitate is collected, after twenty-four hours, on a filter, and washed with a solution of common salt; to the filtrate ammonia is added, and the fluid left standing for twenty-four hours; the crystals which have separated are collected, redissolved in acetic acid and precipitated with ammonia; the precipitate so obtained is washed, dried and weighed; its weight should not be less than one gramme, corresponding to 10 per cent. of morphia in the opium. *Zeitsch. d. oest. Apoth. Ver.* 1868, 16, 351, & *Am. J. Ph.* Jan., 1869, 21.

Rieckher has submitted the tests of Schacht, Hager and Duflos to a comparative examination, and has come to the conclusion that the methods of Schacht and Duflos (given in former reports to this Assoc.) and of Hager, render very accurate re-

sults. Rieckher is of the opinion that any of these tests requires too lengthy a description to be incorporated into a Pharmacopœia, and that these may merely require an opium powder containing not more than 40 p. cent. constituents insoluble in water, and at least 14 per cent. impure morphine, as obtained in the above tests. N. Jahrb. f. Ph. xxviii, 257.

Nature of Opium. F. A. Flückiger (London Ph. J. Oct., 1868,) examined opium with a view to ascertain its constituents besides its well-known numerous alkaloids, and its meconates and thebolactates which form only about 33 per cent. of the dry drug. Flückiger exhausted opium successively by benzol, by alcohol, by hot and cold water, by diluted acetic acid and finally by ammonia. Benzine extracted 10·83 per cent., of which 4·5 per cent. were narcotine and 6·33 p. c. caoutchouc; the residue treated successively with the other menstrua gave off to alcohol 57·67 per cent. including all the alkaloids, to the water 9·67 per cent. mucilage, to acetic acid 1·73 per cent. and to the ammonia 7·33 per cent. pectic acid, a substance heretofore not ascertained in opium. Flückiger states that the mucilage in opium is not analogous to gum arabic and to bassorin, so that opium wherein arabin is found can contain this only as an adulteration. Am. J. Ph. Nov., 1868, 526.

UMBELLIFERÆ.

Cicuta virosa, L. The corms of *cicuta virosa* have been the subject of an elaborate examination by von Aukum. 15 pounds of the dry corms yielded three ounces essential oil; it is neutral, separates no stearopten and weighs 0·87038 at 18° C.; it consists mainly of a hydrocarbon, called by von Aukum cicuten, which is not poisonous; von Aukum's pains to find the pretended poisonous volatile cicutin, which Poley and Wittstein aver to have obtained, were unsuccessful. The existence of such a substance, therefore, seems to be questionable. J. f. prakt. Ch. 105, 151.

Conium maculatum, L. In a paper on conium published in the Transact. N. Y. State Med. Soc. 1867, Dr. W. M. Smith comes to the conclusion that, with respect to their therapeutical effect, the immature fruits of conium seem to be preferable to the leaves. Am. J. P. 1868.

AURANTIACEÆ.

Citrus medica, L. W. W. Stoddart read before the Norwich meeting of the Brit. Pharm. Conference a paper on lemon-juice and its decomposition. Among the practical results are:—when lemon-juice is carefully evaporated it yields a rich brown extract, which is very peculiar, both in smell, taste and appearance, so much so that it is easy to tell whether or not it is genuine juice. One ounce of lemon-juice will average 27 grains of dry extract, but it seems impossible to evaporate the juice to dryness without decomposition. Lond. Ph. J., Oct. 1868.

ROSACEÆ.

Rosa. F. A. Flückiger has examined the stearopten from English rose-oil; it is devoid of the smell of rose-oil, emits, when heated, an offensive odor like heated wax or fat, is very stable and the product of its oxydation is mainly succinic acid. The composition seems to correspond to the formula $C_n H_n$. Lond. Ph. J. Sept. 1868, 147.

MYRTACEÆ.

Melaleuca. H. Werner has examined eight samples of cajeput-oil for the purpose of ascertaining whether the color was due to copper or not, and detected the presence of that metal more or less distinctly in each of them. Still another sample of a fine green color, contained no trace of copper, and differed from others, which showed at 13°C. densities from .921 to .930, by a sp. gr.=.937, and by congealing at -24.5° C. against several of the other samples at -28° C. Ph. Zeits. f. Russl. 1868.

KRAMERIACEÆ.

Krameria triandra, L. Dr. W. F. Gintle, in the Zeitsch. d. oest. Apoth. Ver. 1869, 11, suggests that some varieties of kino obtained from the order Dalbergiæ are used as substitutes or adulterations of extract of rhatany, which may account for its containing the so-called rhatanin, unless some portion of *Krameria triandra* should contain it.

POLYGALACEÆ.

Polygala senega, L. The roots of *Cypripedium pubescens*, Willd., and probably of *Cypripedium parviflorum*, Salisb., have been observed in commercial senega root, by A. E. Ebert, and F. A. Flückiger. Schweiz. Woch. f. Ph. 1867, 392.

LAURINEÆ.

Cinnamomum. A. Schnitzlein has published an abstract from Miquel's great work, *Annales Musei botanici lugduno-batavi*, the conclusions of which are :—1, Ceylon cinnamon is collected from the varieties of *Cinnamomum zeylanicum*, L. 2, Malabathrum cinnamon is collected in East India, from *Cinnamomum Tamala* and *Cinn. albiflorum*, and probably also from *Cinn. dulce* and *Cinn. Loureirei*, in Cochinchina and China. 3, The origin of *Cassia lignea* or Xylo-cassia has not yet been fully established ; it is principally collected in Malabar. 4, *Cassia cinnamomea* or Chinese cinnamon is the bark of *Cinn. aromaticum*, which is extensively cultivated in parts of China and in the Indian Archipelago. Cassia buds are derived from the same species. N. Rep. Ph. xvii, 412–427.

RHAMNACEÆ.

Rhamnus frangula, L. The coloring principle of Buckthorn has repeatedly been examined without satisfactory results, because the respective chemists did either not obtain it pure enough or they overlooked its glucosidic nature, and did not account for the products of its splitting up. Casselmann first succeeded in the preparation of franguline in a pure state by boiling the bark with ammoniacal water, precipitating with hydrochloric acid, boiling the precipitate with alcohol and precipitating the alcoholic solution with subacetate of lead. The red lead compound is decomposed by sulphuretted hydrogen, and afterwards the frangulin is extracted by boiling alcohol. This solution is concentrated by evaporation, and the frangulin is precipitated by water. By repetition of this latter operation the frangulin is obtained pure as a yellow mass with crystalline texture ; it is almost insoluble in cold water, slightly soluble in cold but more readily in boiling alcohol, soluble in alkaline solutions, and then exhibiting a brilliant purplish-red color. Its ammonia solution is at first colorless, and becomes, after a while, a brilliant red. It fuses at 226°C. Its formula is $C_{20}H_{20}O_{10}$; acids split it into glucose and frangulinic acid and traces of difrangulinic acid, which have been studied by August Faust. Pharm. Cent. H. 1869, 24.

Buchner's Rhamnoxanthin and Kubly's Avornin, are but impure frangulin. Zeitsch. f. Chem. 1869, No. 1.

BURSERACEÆ.

Amyris elemifera, L. Among the Mexican drugs sent by Mr. Schaffner, in Culiacan, Sinaloa, Mexico, to Germany, and examined by Prof. Henkel, were two specimens of Mexican Elemi. The one forms a hard light yellow resin of strong odor, and is derived from the *Amyris elemifera*, L. growing in southern Mexico. It resembles the commercial variety of Manilla Elemi. The other specimen is inferior and is evidently a mixture of resins of different species of *Amyris* collected in Western Mexico, along the Pacific Coast, and known there as "copal de la virgen." N. Rep. d. Ph. xvii, 483.

LEGUMINOSÆ.

Senna. For the last two years the chemistry of senna leaves has been the subject of several elaborate researches by Kubly, Rau, Ludwig and Stütz, Dragendorff, Groves, Hager and others. The practical results of their labors are mainly:—The purgative effect of senna is due to a substance called, by its discoverers Lassaigne and Fennelle, cathartic acid, which probably is a mixture of several substances not yet properly defined.

Mineral acids, aided by heat, destroy this active principle of senna, organic acids precipitate it from its aqueous solutions, but do not decompose it, even on boiling, (Groves.) Antimonial salts, tannin and the prussiates have no effect upon it. Alkalies, aided by heat, act destructively upon it. Long continued action of heat decompose it as does fermentation.

Decoctions and extracts of senna are therefore to be made with proper precaution and celerity, or are preferably abandoned in favor of recent and quickly-made infusions. Fermentation has to be obviated in all preparations of senna, they being rendered completely inert thereby. As a prevention thereof, a slight addition of chloroform and alcohol to the infusion and syrup of senna is recommendable.

Several pharmacopœias prescribe the leaves exhausted by alcohol; the variable color of these leaves was found, by Dr. Hager's experiments, to be due to the temperature of maceration, and besides to the mode of expression. The leaves take a dark-brown color when extracted at about 20°C., but they retain their

natural green color when extracted at $+10^{\circ}$ C. According to all appearances, the alcoholic exhaustion of the senna leaves is of no, or only secondary, necessity, whilst the strength and action of senna and its credit as a cathartic greatly depends on the proper preparation and preservation of its officinal preparations. Proceed. of the Brit. Pharm. Conf. 1862, 40.

Copaifera species. Strauss submitted the volatile oil of copaiba balsam to an examination. After rectification with calcium chloride its spec. grav. is 0.921, its boiling point 250° C.; it dissolves in three volumes of alcohol. It is resinified by nitric acid and forms with chlorhydric acid a crystallized compound. Since its vapor density is twice as large as that of turpentine oil its formula is represented as $C_{40}H_{32}$. The alkaline solution of the resins remaining behind in the distillation of the oil contains an acid which the author calls meta-copaivic acid $=C_{44}H_{34}O_8$, crystallizing in white crystals soluble in alcohol. Maracaibo balsam contains the same volatile oil, but not the acid. Annal. d. Ch. & Ph. 148.

Gum arabic. From Sinaloa, Mexico, Prof. Henkel received specimens of a gum very similar to Senegal gum. It is said to be derived from *Prosopis dulcis*, Schiede, *Prosopis horrida*, Kunth, *Prosopis inermis*, Bonpl. & Humb. These trees and others of the same genus are frequent in the terra caliente of Mexico. Schaffner, of Culiacan, mentions, besides, a gum derived from *Spondias myrobalsamus*, L. These gums can be substituted for the Senegal gum. N. Rep. Ph. vii, 481.

Ferreira spectabilis, Fr., Allem. It appears that in the Brazils there is in use, as a febrifuge, a resin collected from several trees; it is known in some parts of the country as sulphato, in others as resina d'angelim pedra. Dr. W. F. Gintl (Sitzungsber. d. Wiener Akad. d. Wiss. 1868) finds that this substance is almost insoluble in cold water, in alcohol, and ether; it is neutral, dissolves in acids without neutralizing them, and crystallizes from these solutions in combination with the acids. Diffused in water and boiled with a little nitric acid, a rose-red color ensues, changing to ruby and finally to blue; more nitric acid produces a green, and finally a brown powder. The liquid obtained by

treating the resin with concentrated sulphuric acid, and then neutralizing with carbonate of baryta, is colored violet by ferric chloride; it fuses and volatilizes; its composition is $C_{20}H_{13}NO_6$. All these reactions prove the substance to be identical with the so-called rhatanin found by Dr. Emil Ruge in the South American rhatany extract, and which cannot be obtained from rhatany root. Zeitsch. d. oest. Apoth. Ver. 1869, 32.

Physostigma venenosum. W. Procter, Jr., suggests the following formula for the tincture of Calabar beans: Take 1 oz. beans, 7 oz. alcohol, and 3 oz. water. The powdered beans are moistened with half an ounce of the menstruum and packed in a conical tube, and percolated by the whole menstruum, or so much of it that half a pint of tincture is obtained.

To calabarize paper, two ounces of this tincture are evaporated to three drams on a water-bath, and, when cold, filtered. The paper deprived of its size is saturated three or four times with this extract. Am. J. Ph. Nov., 1868, 520.

Myroxylon punctatum, Klotzsch. M. Delafontaine has recently continued his researches on Peru balsam. He obtained a substance believed to be cinnamein, which, however, appears to be a mixture of cinnamic-benzyl ether and cinnamate of cinnamic ether. This mixture boils at $305^{\circ}C$., but is then also partly decomposed, leaving a resinous residue, while, when the operation is pushed rapidly, inflammable gases are also given off. In order to prevent any secondary decomposition, a portion of cinnamein was saponified in the cold with an alcoholic solution of caustic potassa, and the result of this operation treated with water; this dissolved cinnamate of potassa, and an oil was set free, which, by means of fractional distillation, was separated into benzyl-alcohol (boiling at $205^{\circ}C$.) and cinnamic alcohol (boiling at $222^{\circ}C$.), the quantity of the latter being about half as much as that of the former. The results of the researches made by Plantamour on this subject about thirty years ago were the same. The chief mass of the balsam is therefore this mixture, known as cinnamein, but it also contains variable quantities of other substances, among these toluol, and some ethereal oils not properly known in separate state. Chem. News, A. R., July, 1869, 35.

The root of *Periandra dulcis*, Mart., is employed in Brazil as a

substitute for liquorice root, with which it, according to Dr. Peckolt, has in common the same constituents, including glycyrrhizine. It yields about thirteen per cent. dry extract, equal to the best commercial liquorice.

BIXACEÆ.

Bixa orellana, L. W. Laird (Lond. Ph. J. Sept., 1868, 156) found that roll annatto, instead of being the best commercial annatto, frequently is merely a paste of farinaceous substances and common salt, colored with about fifteen per cent. of annatto.

STERCULIACEÆ.

Stercularia tragacantha, Lindl. It is well known that various plants furnish exudations equal or similar to tragacanth. Besides the East Indian tree *Stercularia ureus*, Roxb., which exudates abundantly a substance much resembling tragacanth, recently a gum from western tropical Africa has made its appearance in the market, which, when the Niger and its tributaries are once opened to commerce, may possibly form an important substitute for its older known rival from Asia Minor. Specimens of this African tragacanth transmitted from the royal gardens at Kew have been submitted for examination to Dr. Flückiger. It consists of irregular, knobby, undulated, drop-like or stalactitic masses of a pale yellowish hue or almost colorless, in small fragments nearly transparent, but seen in mass somewhat opaque by innumerable cracks, which render it more brittle than true tragacanth. With twenty parts of water it forms, like tragacanth, a thick tasteless jelly; with forty parts of water the jelly becomes more fluid; it reddens litmus. The filtered liquid behaves towards neutral and basic acetates of lead like the *astragalus tragacanth*, but it differs from this by the complete lack of any cellular structure and of starch. Its chemical composition corresponds much with gum arabic. For pharmaceutical use it seems equal to the *astragalus tragacanth*. London Ph. J. May, 1869, 641.

DRUGS DERIVED FROM THE ANIMAL KINGDOM.

Honey. W. W. Stoddard publishes an essay on honey, its origin and formation, and comes to the conclusion that honey is

originally formed from a solution of cane sugar (sucrose), which gradually changes into grape sugar (glucose), and forming, as it proceeds, a small quantity of mannite, formic acid and alcohol. The color and flavor are due to and derived from the aroma of the flowers which the bees have visited.

The adulteration of honey consists mostly in cane sugar or in starch sugar. The former is detected by the microscope, since the crystals are not only easily recognized, but generally the sugar-itch insects, in all their stages of growth, occur in the field of vision. Starch sugar being nearly identical with the true glucose of honey, is hardly satisfactorily to be detected, except perhaps by presence of sulphuric acid from its preparation, or by some unconverted starch. Lond. Ph. J. Sept., 1868.

According to a notice in No. 84 of the *Deutsche Ind. Zeit.*, honey is sometimes met with in commerce which is nothing but glucose obtained from starch. This adulteration may be detected by means of the presence of sulphuric acid or unconverted starch. Ch. N., A. R., Dec., 1868, 842.

Clarifying Honey. H. Ludwig, after a review of all methods proposed and in use for clarifying honey, comes to the conclusion that the simplest and best mode is to mix an equal bulk of water with the honey in a pan over the fire, and to heat them to boiling, then to put it into a vessel and place it in a cool cellar until clear, so as to be readily decanted from the sediment; the latter, with some water, being transferred to a filter. It will be found advantageous to add some white of egg to honey which may be very impure. The evaporation should take place on the water-bath. N. Jahrb. d. Ph. xxiv, 118.

In a notice in the *Polyt. Notizbl.*, No. 21, 1868, the purification of honey is proposed in the following manner: The diluted honey is heated with a thin pulp of white clay; after boiling for two to three minutes skim and strain, or, if necessary, filter. Then boil down to the proper consistence.

Wax. -Canaiiba wax is, according to a communication to the Chem. Soc., derived from the glaucous coating of the younger leaves of the *Copernicia cerifera*, a palm in Brazil. In the crude state it is of a greenish-yellow color, and melts at 183° F. Ch. N. A. R. April, 1869.

Castoreum. Hager suggests the following mode to determine the value and quality of castoreum:—1. The taste of the Siberian is far stronger, it being richer in castorin. To determine the origin of samples of castoreum a weighed quantity of each sample is repeatedly extracted with pure benzine, (petroleum ether) and the solutions are allowed to evaporate on watch-glasses. When equal quantities of the different samples are taken the disk containing extract from Siberian castoreum will be covered thicker with grayish castorin than samples of Canada castoreum. The author found 4.6 per cent. residue from the former, against 1.98 per cent. of the latter, including part of the volatile oils. 2. The above residue, when extracted with chloroform, yield a brown resin, which, from the Canadian castor is quite hard and of slight odor, whilst that from the Siberian is more glutinous and of a stronger odor. 3. The powders of both, when treated first with some alcohol and afterwards with diluted hydrochloric acid, yield, after standing for 10 to 20 hours, a supernatant liquid, which is yellow or light brown with Canadian, but dark brown with Siberian castor. 4. When the powdered samples are macerated some hours with ammonia solution they yield clear supernatant liquids, of which that of the Siberian sample is far darker. 5. The alcoholic tincture of both, when diluted with water, gives a milky liquid, which, on addition of ammonia solution, turns clear if the tincture was made of Siberian castor, but remains more or less turbid with the Canadian. Hager's Centr. Halle 1869, No. 8.

Cochineal. M. Himmelmann calls attention to an admixture of sulphate of baryta not unfrequently met with in commercial cochineal. This adulteration is made with great dexterity, by fastening it upon the cochineal by means of some adhesive material. Himmelmann found 8, 12, 16, 18 and 25 per cent. baric sulphate in various samples of cochineal. The adulteration may be estimated by calcination of 100 grains of the sample; the addition of some ammonium nitrate facilitates this process. The weight of the remaining ashes, after due deduction of $1\frac{1}{2}$ per cent., being the proper weight of cochineal ashes, gives the percentage of the admixed inorganic substance, in most cases baric sulphate. Der Apotheker 1869, No. 2.

MISCELLANEOUS DRUGS.

Drugs at the Paris Exposition. Prof. von Schroff has given, in N. Rep. Ph. Vol. xviii, 65-93 and 118-154, an elaborate and valuable report on the pharmaceutical drugs and some of their preparations at the recent Paris Exposition, and has added a critical exhibit of our present knowledge of some of the most important drugs.

Mexican Drugs. Mr. Schaffner, of Culiacan, State of Sonora, Mexico, has sent a number of specimens of Mexican drugs to the late M. Guibourt. Prof. Henkel has examined and reported on them in N. Jahrb. Ph. 29, 14. They are mainly:

A gum like kino, derived from *Croton draco*, Schltd.

An arabin derived from several species of *Proposis*.

The seeds of *Hura crepitans*, a powerful cathartic.

The seeds of *Croton tinctorium*, a cathartic.

A gum lack derived from a *Croton* called *sonorensis*.

Several specimens of elemi derived from *Amyris elemifera*, L.

Tamarinds from *Cassia fistuloides*, Collad., and from *Tamarindus occidentalis*, Gaertn.

The bark of *Coutarea latiflora*, DeC., used as a febrifuge in Sonora.

The rootstocks of *Veratrum frigidum*, Schltdl.

Peruvian Gum. Recently in Germany a powder has come in use for thickening and fixing colors upon cotton goods and wall papers. It is said to be a powdered root derived from an unknown plant in Peru; the roots are one to two inches long, of the thickness of a quill and over, very hard, reddish brown externally, internally yellowish white with a yellow centre; alcohol dissolves some coloring matter. The powder swells with 15 to 17 parts of cold water to a stiff paste of the consistency of honey, which is free from starch and sugar. Its solubility in dilute acids and potassium hydrate and its swelling with water prove the so-called Peruvian gum to consist mostly of bassorin. Its thickening property is said to be six times greater than that of Senegal gum, which, however, possesses greater adhesiveness. Deutsche Ind. Zeit. 1868, 224.

Ylangylang. Under this name the volatile oil of the flowers

of *Unona odoratissima* was recently introduced into perfumery. According to a communication of F. Steck, of Manilla, these flowers are collected from a tree indigenous on the Philippine Islands. The present price of this oil comes very near that of rose oil. Hager's Cent. H. ix, 46.

Ramie. The cleaned fibre of this plant is, without bleaching, white, and finer than flax or hemp fibre. The plant is perennial, and the crops from it are taken like those of cane, by cutting it at the ground; from the ratoons a new growth springs up, giving from three to four and even five cuttings a year in Louisiana, middle and lower Mississippi, Texas, Alabama, Georgia and Florida. To all appearance this fibre will take an important place in industry, and consequently contribute to the prosperity of the Southern States. Journal of Agriculture, 1869.

Mineral Caoutchouc. In the southern portions of the Brit. Colony Adelaide, South Australia, have recently been discovered deposits of a carboniferous substance, which hitherto has only been found in small quantity in the coal strata of Derbyshire, (England). It is a mineral caoutchouc, so-called from its general appearance and elasticity. Analysis proves it to yield 82 per cent. or more of a pure hydrocarbon oil. This discovery is believed to be valuable, since the substance may be applicable to the manufacture of gas and anilin dyes; it is also important from its indication of the existence of oils or other carboniferous deposits. Mining Journal 1869.

(This material, known in mineralogy as elaterite, is also found in a coal pit near Nantes (France), at Neufchatel (Switzerland), and on the Island of Zante.)

PHARMACEUTICAL CHEMISTRY.

CHEMISTRY OF THE INORGANIC BODIES.

NON-METALLIC ELEMENTS.

OXYGEN.

Perfectly pure oxygen gas is obtained, according to Böttger, from permanganate of potassa by heating. This salt yields only

about 10 per cent. its weight of oxygen, but the gas is perfectly free from chlorine and from ozone. As residue remains a mixture of manganate of potash and oxide of manganese, readily reconvertible into permanganate. Ch. N. A. R., June, 1869, 322.

Production of oxygen and chlorine. A. Mallet has continued his researches on the production of oxygen, and has added some new interesting observations. Cuprous chloride may be used either for the disengagement of oxygen, or for the liberation of chlorine, should the production of that body be desired. The absorption of oxygen by protochloride of copper is spontaneous, and takes place at the ordinary temperature in a few hours, provided the air be sufficiently moist. If the temperature be raised, the absorption is more rapid; between 100° and $200^{\circ}\text{C}.$, or at a higher temperature, in the presence of steam, it is almost instantaneous.

A demonstration of this may be made by means of a balloon, containing some grammes of protochloride of copper, and communicating with a graduated receiver. If the balloon is then heated and several drops of water are injected upon the substance without allowing any communication with the exterior air, absorption takes place immediately, and the water rises into the receiver. By restoring the apparatus to its original temperature and pressure, the oxygen will prove to be completely absorbed, provided the relative proportions have been correct. Thus the protochloride of copper may be oxidized in a few minutes at a temperature differing but slightly from that required for deoxidation.

If upon protochloride of copper, heated to 100° or $200^{\circ}\text{C}.$, commercial chlorhydric acid be slowly dropped, steam alone will be disengaged, and supposing the addition of acid to be slow enough, and the access of air and renewal of surface sufficient, the odor of hydrochloric acid will be scarcely perceptible, and the protochloride will be entirely transformed into anhydrous cupric chloride, Cu Cl_2 , which, when heated in a close vessel, instantly disengages chlorine. The simultaneous absorption of oxygen and chlorhydric acid is an important fact, because the extraction of the chlorine from the acid takes place in this case

by means of the atmospheric air, and in an absolutely direct manner. With gaseous chlorhydric acid the action is the same, provided the acid gas contain, as is always the case, a certain quantity of moisture, and that the accession of air be sufficient.

Oxidation and chlorination take place very quickly at high temperatures, but the great advantage is that they yield dry products, the presence of moisture being frequently a source of inconvenience, and the cause for changing the apparatus. Compt. Rend. 66, 349.

Ozon. Edward Schaer gives, in Viert. Jahr. Ph. xviii, 1, a comprehensive review of the history and our present knowledge of active oxygen and its chemical and physiological relations.

HYDROGEN.

Water, its maximum density. A new series of researches by Rosetti, on the precise temperature at which water arrives at its greatest density, has led to very nearly the same result as H. Kopp's researches, the numbers being 4.07°C . or 39.326°F . Kopp's number 39, 344°F .

Ebullition of water. In reference to the established fact that water, after having been deprived of air as much as possible, either does not boil at all when heated, or does so with violent sudden starts and concussions, a number of experiments have been made by Kremers, (Poggend. Annal.) As a result thereof, the author finds that water, as fully deprived of air as possible, may be heated as high as from 180° to 200°C ., without boiling permanently. Ch. N. A. R., June 1869, 320.

Pure water. J. S. Stas recommends for the preparation of absolutely pure water, as required for some delicate analytical operations, the following methods, founded on the destruction of organic matter by manganates and permanganates:—A freshly powdered mixture resulting from the fusion of chlorate and caustic potassa with the peroxide of manganese is covered with water. When clear, the water to be purified is mixed with four to five per cent. of this permanganate solution and left standing for 24 hours. The still is then charged with another portion of permanganate solution and an equal bulk of liq. potassæ, and lastly filled to four-fifths with the water previously mixed, after which

distillation is made to proceed as usual. As soon as the contents reach the boiling point, the heat is moderated to prevent boiling over, from violent intumescence which occurs. When this ceases the liquid is merely kept boiling. The first five per cent. coming over are rejected, and the remainder is collected as pure ; though, if wanted absolutely pure from any solid or condensable matter, the water, after this, is once more rectified from a still, a platinum tube, soldered with gold, serving as a condenser. In case the water should contain traces of ammonia, a second distillation becomes necessary, in which some thousandths of bisulphate of potassa or soda is to be added. A. D. C., Jan. 1869, 12.

For estimating the amount of carbonic acid in the bicarbonates contained in natural waters, Ch. Lory suggests phosphate of copper. The standard solution of mercurial nitrate hitherto used is objectionable, when the water contains more than traces of chlorides or organic matter, or is charged with sulphates. These impediments are successfully overcome by the use of a standard solution of phosphate of copper. By combining this test with the well-known assay of the natural waters by a standard solution of soap, both before as well as after its boiling, the most important elements for the appreciation of its ordinary and hygienic qualities will be obtained. Ch. N. A. R., Dec. 1868, 306.

For detecting the presence of nitrates in water, P. Blunt advises the use of sodium amalgam, as being more delicate than the common test with ferrous sulphate. It depends on the reducing action exercised by the amalgam on nitric acid, and the consequent application of the well-known Nessler test. Ch. N. A. R., Dec. 1868, 311.

The examination for the purity and for the detection of organic substances in potable and spring waters, has lately been the subject of several elaborate analyses and studies. Such belong properly to the domain of analytical chemistry, and are altogether too extensive for an abbreviative report on pharmaceutical chemistry. Since, however, such analyses now and then are pressed upon pharmacutists, it may be opportune to refer to the best publications on this subject during the last year :

Heintz, Zeitsch. f. An. Ch. v. 11. Loewe, *ibid.* v, 23. Kubel, Anleitung zur Unters. von Wasser. Braunsch. b. Vieweg. Th. Poleck, Beiträge zur Kenntniss der chem. Veränd. fliessender Gewässer, 1869, Breslau. Schultze in 32ter Jahresber. des Rostocker Gew. Ver. Goppelsroeder, Verhandl. d. Basler Naturfor. Ges. Schacht, Arch. d. Pharm. 158, 10. Bellamy, Jour. de Pharm. et de Chim. 5 ser. vii, 93.

NITROGEN.

A new method for preparing Nitrogen Gas has been suggested by M. Levi; it consists in heating bichromate ammonia in a retort; the salt is thus resolved into green chromium oxide, and into water and nitrogen gas. A. D. C. July, 1869, 123.

Nitric Acid. For the detection of nitric acid Hager recommends a process which he calls the sugar-molybdic acid reaction. Any solution containing free NO_3 or nitrates (the NO_3 is set free by the addition of some SO_3 or ClH .) when heated with a few drops of a solution of molybdate of ammonia remain unchanged, but when some grape or cane sugar is added, after some boiling the solution turns intensely blue, which reaction is reliable when the liquid contains but $\frac{1}{1500}$ per cent. of NO_3 .

A still more delicate test for nitric acid has been discovered by M. Braun in the sulphate of aniline. In a test glass about 1 c. c. of pure conc. sulphuric acid is placed; to this is added, drop by drop, $\frac{1}{2}$ c. c. of a solution of sulphate of aniline. A glass rod is dipped into the liquid to be tested, and then into the mixture in the test glass. On moving the stirrer, when the slightest trace of nitric acid is present, red streaks mark the course of the glass rod. In presence of more than traces of NO_3 the liquid becomes deep red. This reaction depends upon the formation of fuchsin. It is applicable to detect the least traces of NO_3 in oil of vitriol and in spring and rain-waters. Hyponitric acid produces the same reaction as nitric acid. This, however, can easily be distinguished by potassium iodide starch acidulated with sulphuric acid. Zeitsch. f. Analyt. Ch. vi, 71. Ch. N. A. R. April, 1869, 202.

CARBON.

M. Berthelot, in a paper "on the immediate *analysis of different varieties of carbon*," describes the influence upon carbon of various varieties by various agents, such as heat and electricity, chlorine, iodine, oxygen, etc., already formed, also the characteristics of carbon extracted from its various compounds. He states, as the result of his experiments and observations on the latter subject, that carbon when separated from compounds containing hydrogen, takes the condition of amorphous carbon; while that derived from its combinations with chlorine, sulphur, boron, and perhaps oxygen, inclines to the state of graphitic carbon. Amorphous and graphitic carbons would, therefore, appear to represent, not different conditions of carbon itself, but certain polymeric states of that element. Comp. Rendus.

Carbon Bisulphide. M. Millon recommends the following method for purifying carbon bisulphide: It is first washed several times with distilled water, and then introduced into a large retort containing quicklime. After twenty-four hours contact the sulphide is distilled from the lime and received in a flask partially filled with copper turnings, previously calcined to remove organic matters and afterwards reduced by hydrogen. The lime remaining in the retort is strongly colored. The carbon bisulphide thus purified has an ethereal odor, not at all disagreeable. It is with carbon bisulphide thus purified that M. Millon and Commaille have separated the perfume of the most delicate flowers, and from cows' milk have been able to recognize the odors of plants eaten by the animals. Ch. N. A. R. March, 1869, 142.

(This notice has found place in this report because it has widely been circulated through a number of periodicals. Wittstein (Viert. Schr. f. Ph. xviii, 288) justly declares it a gross delusion, concluding his brief notice with the remark that perhaps the next surprise of some French Journals will be the communication of a simple method to completely purify sulphuretted hydrogen from its smell.)

Carbon bisulphide, when exposed to the sunlight for a considerable time, gradually changes, becoming yellow. O. Loew made some experiments in order to study these changes. He

enclosed the bisulphide in sealed tubes and exposed them to the action of the sunlight. Decomposition ensued, and continued until the inner surfaces of the tubes were coated with a brown substance, which prevented the further action of the sun's rays. If some water be present in the tubes this adherence is prevented, and a large quantity of the brown substance is obtained. When these latter tubes were opened the water was slightly acid, by traces of formic acid. The brown compound is, according to the author, a carbon sesquisulphide. *Am. J. Sci. Nov., 1868.*

G. Kennion recommends *carbon bisulphide as a remedy against nervous headache*. A little cotton wool in a small, wide-mouthed bottle is saturated with the bisulphide; the mouth of the bottle is then closely pressed to the temple or behind the ear, or as near as possible to the seat of pain, and so held from five to six minutes; a prickling sensation ensues and the pain is said soon to disappear. *Ind. Bl. 1869, 82.*

Carbonic Acid. Rousseau and Piedboeuf propose to obtain carbonic acid from calcium sulphate and charcoal, or coke, by heating a mixture of both in retorts, arranged and made as those in use at gas works. *Ch. N. A. R. June, 1869, 319.*

CHLORINE.

E. Ludwig has come to the conclusion, in consequence of a series of determinations of the *specific gravity of chlorine gas*, that this gas belongs to those vapors which only obey Mariotte's law when at a temperature rather remote from that at which they exist in the fluid state. The spec. gravity of chlorine at 20° C. is 2.4807, at 50° C. 2.4783, at 100° C. 2.4685, at 150° C. 2.4609 and at 200° C. 2.4502. According to experiments made by Stas, the spec. gravity of chlorine, deduced from its atomic weight, is 2.45012.

A Belgian chemist has devised a new *process for generating chlorine*. He first forms trisulphate of sesquioxide of iron, by the direct combination of this oxide with sulphuric acid, and then mixes the trisulphate obtained with three equivalents of chloride of sodium, or some other convenient chloride. Upon heating the mixture in dry air, the chloride of sodium yields all its chlorine. *Ch. N. A. R. Dec., 1868, 327.*

Hydrochloric Acid. P. W. Hofmann, in Ber. d. Deutsch. Ch. Ges. 1 Jahrg. No. 21, describes a method of preparing pure chlorhydric acid by filling one-third of a vessel provided with a twice perforated clay stopper with crude muriatic acid, and then to allow some sulphuric acid of 1.848 spec. gr. to flow into the acid. Pure chlorhydric acid gas is evolved with gradual evolution of heat; the gas is washed in a Woulffe's bottle and led into water for absorbing. The gas evolution continues until the sulphuric acid reaches the spec. grav. of 1.566. It then contains only 0.32 per cent. chlorhydric acid, so that the slight loss renders this method a very cheap one. N. Rep. Ph. 18, 417.

Chlorates. Sulphate of aniline was recommended by Braun as a reagent for nitric acid and the nitrates. According to Boettger, it is also a delicate reagent for chlorates. If any substance containing the slightest quantity of chlorates is introduced into a mixture of two parts sulphuric acid and one part of a solution of sulphate of aniline, the liquid acquires a splendid blue color. Hager Cent. Halle, 1869, 8.

Alkaline Chlorides. According to Kuentz and Jossinet, the decomposition of alkaline chlorides is readily and economically effected by the combined agency of heat and high-pressure superheated steam. The chlorides are brought to fusion, and while in that state a jet of steam is forced through the fused mass. Chlorhydric acid is formed, together with caustic alkali, or, if at the same time carbonic acid is injected along with the steam, the carbonate of the alkali is formed. Monit. Scient., No. 295.

Organic Chlorides, according to A. Lieben, are converted into iodides by the action of concentrated iodhydric acid. This method of conversion seems to be a general one, and subject to limitation only in so far as some iodides at the moment of their formation are converted into hydrides. Wien. Akad. Ber. 1868, 58.

BROMINE.

Potassium Bromide. M. Baudrimont recommends the following process for detecting the presence of chloride in commercial bromide of potassium: In order first to test for iodine, a small quantity of the sample is dissolved in water, and shaken in a

test tube with an equal volume of bisulphide of carbon. Upon the addition of a few drops of bromine water the bisulphide becomes violet colored if iodine is present. If this be the case, the whole of the iodine has to be removed from the sample by dissolving about two drams of it in water, adding bromine water until violet vapors are no longer visible on boiling, and then testing for iodine in the above manner. Afterwards the solution is evaporated to dryness, to remove the excess of bromine. The potassium bromide thus obtained is free of iodine. The process of its further examination for chloride depends upon the fact that a given weight of potassium chloride requires a much greater amount of a standard solution of silver nitrate than the same weight of potassium bromide; while the bromide for the complete precipitation of one gramme requires 1.428 grm. of silver nitrate, one grm. of the chloride requires 2.278 grms. For the examination of potassium bromide, a standard solution of silver nitrate is first prepared by dissolving, in a litre of water, 10 grms. of the pure salt, each $\frac{1}{10}$ c.c., corresponding to 1 milligramme of silver nitrate. 1 grm. of the bromide to be examined, freed from iodine if necessary, is dissolved in 100 c.c. of distilled water; 10 c.c. of this solution, representing .1 grm. of potassium bromide, would require, if pure, 14.2 c.c. of the silver solution; potassium chloride would require 22.7 c.c. Ch. N., A. R., Sept., 1868, 152.

Bromides. J. H. Bill recommends a method for detecting bromides in urine, based upon the fact that gold chloride does not suffer any change in a solution containing only chlorides, but that the presence of slight traces of bromine produces a yellow color. The urine to be examined is acidulated with nitric acid, and then precipitated with silver nitrate. The precipitate is washed, and when dry is fused with a mixture of chemically pure carbonate of soda and potassa. The mass is dissolved in a little water, with as much hydrochloric acid as will neutralize the solution; this is filtered into a test tube. Another equal test tube is filled to the same height with a solution of sodium chloride. To both solutions is now added one drop of an auric chloride solution; if the first one contains any bromine it will yield a yellowish tint,

especially visible when viewed from above and compared with the second solution. A. J. Med. Sc. July, 1868, 20.

Detection of Chlorine, Iodine and Bromine. Phipson and Baudrimont suggest the following method to detect and determine I, Cl and Br. It relates first to I and Br, and is based upon the fact that I is always first separated by Cl, that afterwards it is transformed into iodine-perchloride (ICl_5), and that then Br is set free. In order to apply this test for the examination of iodide potassium for an admixture of bromide potassium, or *vice versa*, a solution of the sample in a test tube is acidulated with hydrochloric acid, and after the addition of some bisulphide of carbon a clear solution of bleaching powder is added gradually, with frequent shaking. When iodine is present it is set free, and dissolves with dark purple color in the bisulphide of carbon; by continued addition of the chloride of lime solution ICl_5 is formed, which dissolves colorless in the bisulphide. A further gradual addition of the lime solution now acts upon the bromine, sets it free, and imparts an orange color to the bisulphide of carbon.

This test is said to be so delicate as to detect I and Br in mineral waters.

It remains now to examine for chlorine. If the presence of both Br and I has been ascertained by the above test, the latter has to be removed first. To this end the solution of the sample is mixed with a sufficient quantity of bromine water, and heated until no more iodine vapor is evolved; in order to expel all free bromine the solution is evaporated to dryness. The salt obtained consists of the potassium or sodium bromide, but may also contain their chlorides. It is fused with an equal weight of potassium bichromate. The fused mass, when cooled, is triturated and put into a small retort provided with a twice bent glass tube. Strong sulphuric acid is now poured upon the salt, and the whole is moderately heated; the evolved gas is conveyed into aqua ammoniæ. If the salt contained only bromides, bromine gas is evolved and absorbed without change of color; but when chlorides are present the formation of chloro-chromic acid gives rise to a yellow coloration of the ammonia solution. J. de Ph. et de Ch. 4 ser., vii, 191.

For the *detection of chlorides alone in the bromides of potassium and sodium*, the well known test introduced by Wittstein in 1864 answers well.

The most delicate method for detecting Cl, Br and I is, according to Poggendorff's Ann., the spectroscopic analysis.

IODINE.

A. Bobierre gives, in the Monit. Scient., a reliable method for the *volumetric estimation of commercial iodine*, based upon Mohr's well known method by means of arsenite of soda with an excess of alkali, but substituting the starch by benzine. Ch. N., A. R., Feb., 1869, 63.

Iodine from Chili, in a more or less viscid form, has lately been brought into commerce. According to F. C. Sticht, this iodine contains only fifty per cent. iodine, and eight per cent. soda nitrate among its fifty per cent. impurities. Sticht supposes that this iodine is obtained by the manufacturers by addition of some nitric acid to the last mother-liquors of iodine. They allow the iodine to separate, take off all liquid, and bring the remainder into commerce. Viert. Schrift. Ph. 18, 132.

Iodine and milk. It is well known that milk takes up iodine, disguising its taste, smell and color completely; since iodine is an antiseptic, iodized milk keeps for some time. Dr. Hager calls attention to this fact, and suggests that this perhaps is the mildest form of administering iodine. Its therapeutical effect seems to be equal only to about one-fifth of the iodine.

Hager thinks that iodized milk will soon become a favorite form of administering iodine, and suggests the following mode of preparation: one part of iodine, dissolved in ten parts of alcohol, are admixed with ninety parts of fresh warm cow's milk. Centr. Halle 1869, 10.

Reaction between Iodine and Sulphhydic Acid. When iodine is dissolved in perfectly anhydrous bisulphide of carbon, and dry sulphhydic acid is passed into that solution, no action whatever takes place. Water, as well as an increase of temperature, are required for the formation of iodhydic acid and the separation of sulphur. Ber. d. Deutsch. Chem. Ges. No. 8, 1869.

FLUORINE.

J. Nicklés continued his researches on the compounds of fluorine. They are published in *Compt. rend.* 65. 109, *Journ. de Ph. et Ch.* 4 ser. vii. 15, *N. Rep. Ph.* xvii. 471.

Hydrofluoric Acid. G. Gore communicated to the Roy. Soc. the results of his elaborate studies on hydrofluoric acid. He obtained the anhydrous acid by heating dry double fluoride of hydrogen and potassium to redness. The author determined successfully the molecular volume of the anhydrous acid in the gaseous state, prepared by heating pure anhydrous fluoride of silver with hydrogen. One volume of H, in uniting with fluorine, produces not one volume of gaseous product, but two, as is the case of its union with chlorine. Mr. Grove, from analyses and experiments, concludes that the anhydrous acid is destitute of oxygen. Its properties and chemical relations were elaborately examined and established by the author. The spec. grav. of the anhydrous acid was found to be 0.9879 at 55° F; its boiling point 67° F; its vapor tension at 60° F., 7.58 pounds per square inch. Its chemical relations lie between hydrochloric acid and water, but more closely near the former.

The pure aqueous hydrofluoric acid was obtained by Grove by passing an excess of hydrogen monosulphide through the commercial acid, then neutralizing the sulphuric and hydrofluosilicic acids present by potassium carbonate, decanting the liquid after subsidence of the precipitate, removing the excess of sulphhydric acid by argentic carbonate, distilling the filtered liquid in a leaden retort with a condensing tube of platinum, and finally rectifying. *Ch. N. A. R.* April, 1869, 181.

SULPHUR.

The important problem, the *recovery of the sulphur from the alkali waste* of the soda works, has lately been considerably advanced. After numerous processes have been in use, Ludwig Mond has introduced a method which is now successfully employed in England, and which is mainly based on the quick oxidation of the alkali waste, or the insoluble residue of the black ash, the first product of Leblanc's process for the soda manufacture. This oxidation is accomplished by alternately

forcing air through the porous residue, and by repeated lixiviation. The mode and theory of the operations are given, as communicated by L. Mond to the Norwich meeting of the Brit. Ass., in the Ch. N. A. R. Dec. 1868, 283—287.

Determination of Sulphur in organic compounds. R. Otto suggests for this purpose the heating of the organic substance in a short combustion tube, mixed with chromate of copper. The chromate is prepared by precipitating a solution of potassic bichromate with cupric nitrate and washing the precipitate. The combustion must be proceeded with slowly. The contents of the tube, after cooling, are dissolved in chlorhydric acid, digested with alcohol, and after complete reduction filtered and precipitated with baric chloride. The principal advantage of the use of this copper salt over that of the mixture of sodic carbonate and potassic nitrate lies in the absence of any action on the combustion tube, so that no silicic acid becomes mixed with the product of the reaction. Ann. Ch. Ph. 145, 25.

A method for the detection of sulphur in organic compounds by means of potassium or sodium has been published by Dr. Schoenn. A small quantity of the substance to be tested is pulverized and placed in a dry test tube, a small piece of either of said two metals is then added, and upon it a small quantity of the powdered substance is again placed in the test tube; heat is applied, reduction takes place, and sulphide of the metal is formed. The test tube, after cooling, having been broken, its contents are placed in a little water acidulated with sulphuric acid; sulphuretted hydrogen is evolved. If the quantity of sulphide formed is likely to be very small, nitro-prusside of sodium should be used as a test. Care should be taken that only small quantities of substances are operated upon in this manner, since some substances, as, for instance, realgar, orpiment, and others containing sulphur and arsenic at the same time, violently explode and detonate when ignited with those alkali metals.

The same process is available to organic substances. Substances like hair, feathers, dry skin, nails, etc., may be at once submitted to ignition with the metal. White of egg, emulsin, saliva, muscle and similar substances have first to be charred on pla-

tinum sheet, and the charcoal so obtained has to be ignited with potassium or sodium. In these cases nitro-prusside of sodium will be required to make the presence of sulphur absolutely evident. *Zeitsch. f. Anal. Ch.* 1869, 51, 53.

Sulphurous Acid. According to Stolba, a mixture of twelve parts of exsiccated protosulphate of iron and five parts of sulphur, when heated in a retort, yield readily and on a large scale sulphurous acid. *Journ. f. pract. Ch.* 99, 54 & 104, 467.

Sulphuric Acid. It is known that nitric and nitrous oxides form part of the atmosphere within the lead-chambers, the presence of the nitrous oxide being supposed to be due to the reduction of nitric oxide by means of the sulphurous vapor. Recent experiments of R. Weber, however, tend to show that the former gas results indirectly from the action of an excess of sulphurous acid upon nitrous and nitric acid in presence of water. Inasmuch as the formation of nitrous oxide involves a loss to the manufacturer, Weber recommends, as a means to obviate this decomposition, the constant presence of a certain proportion of sulphuric and nitric acids, in presence of which no reduction to nitrous oxide can take place. In some parts of the chambers, however, as, for instance, near the steam adits, the formation of some nitrous oxide cannot be prevented. *Ann. Ch. P.* 1868.

Manufacture of Sulphuric Acid. Lardani has devised a novel method and apparatus for the manufacture of sulphuric acid without large leaden chambers. The apparatus consists of a stove where the pyrites are burned. By means of a ventilator a draft of atmospheric air is continually blown into the stove, so that the oxidation of the sulphur goes on rapidly; the sulphurous acid gas passes into an apparatus for depositing sulphur and arsenious acid, then it passes into a cooler, discharging the watery vapor; afterwards it passes into that part of the arrangement where the conversion of the sulphurous into sulphuric acid takes place. This apparatus is divided into two parts; the lower one contains strong sulphuric acid covered with a layer of nitric acid; the upper one, separated from the lower by perforated leaden sheets, is filled with pieces of humid pumice-stone. The current of sulphurous acid gas mixed with atmospheric air passes

through the sulphuric acid and through the layer of nitric acid, and finally in the upper chamber through the pumice-stone, from whence the gases pass into a recipient for the reoxidation of the lower nitrogen oxides. This apparatus consists of a system of earthen pipes very much like the refrigerators of the gas factories; these are filled with pumice-stone or corks constantly kept humid by water.

The reaction of this process is obvious. The sulphurous acid by passing through the nitric acid oxidizes, the remaining lower oxides of nitrogen absorb atmospheric oxygen, forming nitrogen tetroxide, which is conveyed into the regenerator, where it, in contact with atmospheric oxygen and water, reoxidizes to nitric acid, and consequently circulates for perpetual utilization. Dingler's Polyt. Journ. 187, 521.

For the *detection of sulphurous acid and the lower oxides of nitrogen in commercial sulphuric acid*, Robert Warrington suggests the following test: About two pounds of the acid are placed in a bottle which the liquid half fills; the bottle is then stoppered and shaken. The gases contained in the acid are thus washed out by the atmospheric air contained in the bottle. The air in the bottle is then tested by the immersion of a slip of freshly prepared blue iodine-starch paper. The bleaching of the paper gives evidence of the presence of sulphurous acid.

The nitric oxides are detected by substituting for the first test-paper one imbued with iodide of potassium and starch. As NO forms NO_2 on contact with air, and N_2O_3 produces the same compound on contact with air and moisture, the presence of either of these three oxides will suffice to liberate iodine on the moist test-paper, and color the starch. Since sulphurous acid destroys the blue iodide of starch, the presence of an excess of this gas will prevent the detection of the nitric oxides. The nitric oxides are, on the other hand, without effect on the test-paper employed for the sulphurous acid. If this therefore is not in excess, it is possible to obtain the reactions of both gases from the same sample of oil of vitrol, and this is no uncommon occurrence with sulphuric acid which has been imperfectly boiled.

In using these reactions it is, however, to be remembered

that sulphuretted hydrogen produces with each the same effect as sulphurous acid. Ch. N. 1868.

A. Clemm suggests a method for the *volumetric estimation of sulphuric acid* which differs from those of R. Wildenstein and C. Mohr; the solution to be experimented upon is colored with litmus, and carefully neutralized; a solution of barium chloride of known strength is added in excess, and all the sulphuric acid thereby precipitated. Next, a titrated solution of sodium carbonate is added, in order to precipitate the excess of baryta; and next, again, the excess of soda solution used is estimated, volumetrically, by means of a titrated dilute sulphuric acid. During these operations no salt is formed which can injure the color of the litmus. In case salts be present in the original solution, the bases of which could be precipitated by sodium carbonate, that precipitation is performed previous to the addition of soda. The filtrate, which contains the sulphuric acid combined with sodium, is neutralized, and again volumetrically titrated. The solutions required for this test are:—a solution of barium chloride, containing 52 grms. to the litre of water, and a solution of sodium carbonate containing 26.5 grms. of this salt to the litre of water; a solution of sulphuric acid containing 20 grms. of hydrate of sulphuric acid to the litre of water. The great advantages of this method are the non-necessity for washing the barium sulphate and carbonate, and that titration does not take place in a fluid rendered turbid by suspended barium sulphate. Dingl. polyt. J., April, 1869.

Hydrogen sulphide. Boettger has instituted a series of experiments in order to ascertain the effect of sulphuretted hydrogen on a number of chemicals. A jet of this gas inflames by contact with the peroxides of manganese, lead and silver and with teroxide of thallium. Many chlorates, iodates and bromates behave similarly. Other compounds occasion a violent explosion, among these acetylide and fulminate of silver and iodide of nitrogen. N. Rep. Ph. xvii, 468.

Persulphide of hydrogen. A. W. Hofmann has been investigating the constitution of persulphide of hydrogen, and has succeeded in rendering it certain that there is a persulphide

having the formula H_2S_2 . When a cold saturated solution of strychnine in strong alcohol is added to an alcoholic solution of persulphide of ammonium, brilliant crystalline spangles soon appear, and, after twelve hours, the sides of the glass vessel are covered with orange-red needles which are obtained pure by washing with cold alcohol. They are insoluble in the common solvents. Analysis lead to the following formula, $C_{21}H_{24}N_2O_2S_2 = C_{21}H_{22}N_2O_2, H_2S_2$. In contact with sulphuric acid the crystals are decolorized, and, on adding water, colorless, transparent oily drops of persulphide of H are separated, which, after some time, are resolved into S and SH. This compound therefore splits according to the above formula.

Quinia, cinchonia, brucia and other alkaloids seem not to yield an analogous compound. Ber. d. deutsch. chem. Ges. 1, 81. A. J. Ph., May, '69, 238.

PHOSPHORUS.

In the *manufacture of phosphorus* on the large scale, M. Brison proposes to apply a furnace not unlike a blast-furnace as used for the reduction of iron ore. Through the mouth, which can be hermetically closed, coke and calcium phosphate are introduced, along with a sufficient quantity of a suitable flux to liquify the lime and the ashes of the coke. A blast-pipe, connected with a blowing engine, introduces a sufficient supply of air to keep the coke, when ignited, at a high temperature, while a tube plunging into a tank, filled with cold water, is intended to carry off the vapors of phosphorus set free; the slag is run off in a peculiar manner, somewhat akin to that in use with blast-furnaces at iron works, but so as to prevent phosphorus escaping. Ann. du gén civil. 1869, No. 5.

M. Baudrimont states, in the Compt. Rendus, that white phosphorus is neither a hydrate nor an allotropic state of ordinary phosphorus, nor does it result from devitrification of transparent P, but that it is ordinary phosphorus irregularly corroded on the surface by the action of the atmospheric oxygen dissolved in the water, which is accelerated by the action of light, and which ceases as soon as the water holds no more oxygen in solution.

When *phosphorus* is kept under *aqua ammoniæ* for some time it turns black, hard and brittle, so that it may be triturated to a powder. It does not inflame, and remains unchanged when kept in water. Exposed to the air it gives off some ammonia and gradually turns yellow, much like amorphous phosphorus. When laid into *aqua ammoniæ* it blackens again. Hag. Cent. H. 1869, 12.

The *solubility of Phosphorus in carbon bisulphide* has recently been determined by A. Vogel. This liquid dissolves 17 to 18 times its own weight of phosphorus without losing its liquid state. If such a saturated solution is left to stand in an open bottle, by evaporation of the solvent, it soon thickens to the consistency of goose grease. N. Rep. Ph. xvii, 449.

Phosphorus has lately been applied by W. Schmidt, as a *reagent for metals*. When its solution in carbon bisulphide is shaken with water, a white precipitate is formed. The presence of traces of metals caused the precipitate to assume various colors. Solutions of copper, for instance, render the precipitate brown; silver, black; oxide of mercury, yellowish-brown; gold, violet, etc. The filtrates contain generally suboxides.

Dussart's method of detecting P, is, according to Otto, not reliable when at the same time sulphur is present. The emerald-green phosphorus-flame, in such a case, will be disguised by the blue sulphur-flame. All sulphur, however, can be removed when the gas is previously conveyed through an U-shaped glass tube, which is filled with pumice-stone saturated with a concentrated solution of potassium hydrate.

Another source of error to which special attention has to be directed, is the liability of commercial zinc to contain traces of P. Arch. Ph., Jan. 1869, 173.

Schoenn suggests, for the *detection of phosphorus in inorganic substances*, to mix the perfectly dried powder of the substance with magnesium filings and to heat the mixture in a test tube. Phosphide of magnesium is formed, if P is present; when cool, a few drops of water are added to the fused mass, phosphorus trihydride gas is evolved and recognized by its peculiar odor; a sublimation of P and phosphorescence is sometimes

observed when the substances contain more than traces of P and when magnesium is used freely. The same test is applicable to organic compounds; they have, however, previously to be charred. *Zeitsch. f. anal. Ch.* 1869, 53.

A simple *apparatus* for the ready *detection of Phosphorus* in minute quantities, for the use of physicians, has been advised by Dr. Mueller. It consists of a glass flask of about 100 cubic centimetres capacity, closed by a cork which is perforated by a slender glass tube, at least 85 centimetres high, and three millimetres wide. Some of the contents of the stomach (or other suspected substance) is introduced into the flask, water is added, and the whole boiled. In the dark the slightest trace of phosphorus will immediately cause a lightning-like phosphorescence. *Berlin. klin. Woch. Sch.* 1868.

Solvents of Phosphorus. C. Méhu communicated to the Soc. de Ph. of Paris, the results of a series of experiments on the best means of preparing a reliable solution of phosphorus of definite strength for internal administration. Of all known solvents the author finds almond oil and cacao-butter the best and least objectionable. When properly prepared, oil of almonds retains one-eightieth of its weight, (1.25 per cent.) P in solution without crystallizing. Prepared with one-seventieth some crystals are finally deposited. Such an oil is phosphorescent in the dark; this phenomenon ceases not before the oil is so much diluted that one part of phosphorus comes to 500 parts of oil. The phosphorescence, however, is interrupted by the addition of a number of substances, as, for instance, ether and many hydrocarbons, as the oils of turpentine, bergamot, lemon, lavender, mace, mustard, rosemary, mint and thyme. *Lond. Ph. J.*, March, 1869, 541.

Observation and experience seem to evince that the vapor of oil of turpentine is an effectual *antidote against and preventive* of the injurious effect of *phosphorus vapor* on the laborers in match factories. *Arch. Gén. de Méd.*

Phosphoric acid. Prof. Wöhler has suggested a good method of separating phosphoric acid from bases. It consists in dissolving the substances to be analyzed in a small quantity of

nitric acid and adding to the solution, first, argentic nitrate and afterwards its carbonate. When shaken, all phosphoric acid combines with the oxide of silver and is precipitated, whilst the bases remain in solution and may be freed from the excess of silver by means of hydrochloric acid.

MONAD METALS.

POTASSIUM.

Potassium Chlorate. Lange published in the Polyt. Centr. Bl. 1868, 1515, a rational method for the manufacture of the potassium chlorate which is an improvement over the usual method, as it conveys the chlorine gas into hot milk of lime. Calcium chloride and calcium chlorate ensue, which latter one is transformed into the corresponding potassium salt by means of potassium chloride.

Potassium Perchlorate of commerce contains frequently considerable quantities of the chlorate. Rabuteau suggests the purification of such salt by treating it repeatedly with a mixture of equal parts of hot hydrochloric acid and water. When the liquid ceases to decolorize indigo-solution under the influence of some sulphurous acid, the salt is separated from the liquid and is repeatedly washed with hot water in order to remove the potassium chloride. The result is completely pure potassium perchlorate. N. Rep. Ph. xviii, 43.

Potassium Nitrate of commerce, according to Boettger, contains notable quantities of potassium nitrite, originating probably from the sodium nitrite contained in all crude soda salpeter. Since potassium nitrate is usually prepared from this last named salt by decomposition with potassium chloride, the nitrite remains mixed with it in consequence of insufficient recrystallisation. N. Jahrb. Ph. 1868, 570.

Potassium Permanganate. Stædeler recommends, in the manufacture of potassium permanganate, the use of chlorine instead of hydrochloric acid as oxidizing agent; he devises the following method of operating: The crude pulverized manganate is exposed with its own weight of water for several days, then a

similar quantity is added, and a current of chlorine passed through the liquid until it becomes red ; the solution is frequently agitated, diluted with four times its volume of water, filtered and reduced to one-fifth of its original volume. At this point the permanganate crystallizes ; it can be purified by recrystallization. The yield is 90 per cent. of the weight of the manganic dioxide employed. *Zeitsch. f. Anal. Ch.* vii, 467.

It is well known that potassium permanganate readily gives off part of its oxygen, and that its medical and pharmaceutical application and compounding have to be directed accordingly. In solution it ought to be administered, if possible, without the addition of organic or reducing substances. Most of them not only change the permanganate and disqualify it in its intended therapeutical effect, but some give rise to violent reactions even in diluted solutions, as glycerin for instance.

Potassium Bitartrate. The *Zeitsch. f. Chem.* No. 5, 1869, contains the following method to analyse crude cream of tartar : One grm. of the dry and powdered sample is heated to redness in a tared porcelain crucible until the contents are in igneous fusion ; the weight of the residue found after cooling may be called p. The crucible and contents are next boiled in distilled water, the fluid decanted from the sediment is set aside and the latter washed until the wash-water no longer turns red litmus blue ; the insoluble residue is dried. Its weight may be called r ; $p-r$ is equal to the soluble portion of the ash, which represents the potassium carbonate. When the result of $p-r$, expressed in grammes, is multiplied by 271, the percentage of pure potassium bitartrate is obtained contained in the sample of the crude tartar ; when the result of $p-r$ is multiplied by 216 the percentage of crystallized tartaric acid is obtained. *Ch. N. A. R.* July, 1869, 37.

SODIUM.

Sodium Monoxide. Bachel's process for the manufacture of caustic soda is, according to the *Annal. du Génie Civil*, April, 1869, the following : When litharge, chloride of sodium and water are mixed together, oxichloride of lead is formed, and soda set free, according to the following equation :



The oxychloride of lead thus produced being treated with milk of lime, chloride of calcium is formed, and oxide of lead reproduced according to this equation':



The operation, therefore, consists in making oxide of lead act upon common salt, exhausting the soda thus formed by washing out with water and evaporating the alkaline fluid. The oxychloride of lead being insoluble, is placed in a suitable apparatus, and mixed therein with lime water, whereby the oxychloride is re-converted into protoxide of lead. The calcium chloride obtained as by-product is, however, at present almost entirely valueless. Ch. N. A. R. July, 1869, 40.

Sodium Carbonate. C. Kessler suggests a novel method for the manufacture of soda. A mixture of common sodium chloride and chromic oxide is heated to redness and afterwards steam is admitted. The water is decomposed; its oxygen combines with the sodium, sodium bi-chromate being the result, whilst the hydrogen and chlorine form hydrochloric acid, which is conveyed into and absorbed by water. The bichromate thus obtained is now calcined in contact with charcoal on the hearth of a salt-cake furnace, just as in Leblanc's process. Sodium carbonate and chromic oxide result, from which mixture the soda is easily obtained by water. The chromic oxide can anew and permanently be used for the same operation. A considerable advantage of this method is that the formation of the objectionable sulphides and oxysulphides is avoided. Deutsch. Ind. Zeit. 1868, 148.

Sodium Arseniate has been obtained by fusion of sodium nitrate with arsenious acid, which decompose under evolution of gases containing arsenic. Th. Werner suggests the following method of its preparation, whereby no poisonous gases are evolved. A warm solution of sodium hydrate is saturated with arsenious acid, then sodium nitrate equal to three quarters of the quantity of the arsenious acid is dissolved in same boiling water and added to the first solution; the whole is evaporated to dryness and fused in a crucible. The gases evolved are mainly nitrous oxide; they are destitute of any arsenic. Ph. Zeit. Russl. July, 1868.

(A simple mode for the preparation of sodium arseniate would be to oxidize arsenious acid in a porcelain dish, by means of nitric acid, to evaporate to dryness in order to remove any excess of nitric acid, and to neutralize with sodium carbonate).

Sodium Hypochlorite. By substituting a solution of sodium bicarbonate for one of carbonate in the preparation of Javelle water, a precipitate of carbonate of lime is obtained in the form of a crystalline powder, depositing itself easily, whilst, when a solution of ordinary carbonate of soda is employed, a precipitate is formed, which is difficult to separate perfectly from the liquid by decantation. A small excess of the bicarbonate is just as advantageous as in the case of carbonate. Journ. de Ph. et de Ch. 1868.

Sodium Chloride. Messrs. Bald and Mactear read before the Chem. Sect. of the Glasgow Phil. Soc., a memoir on the great salt deposits in the North German basin, whose most celebrated mines are at Stassfurt, Prussia. These deposits present an almost inexhaustible field for study and research. The basin covers an area of more than 120 square miles, filled with new red sandstone; it is interspersed by elevations of gypsum. In the one mine, after passing through 27 feet of alluvial soil, 576 feet of new red sandstone are reached, then 213 feet of gypsum, anhydride, and marl, the salt deposits beginning at a depth of 816 feet. In another mine, half a mile distant, the sandstone is entirely wanting, the salt strata being reached at 480 feet, after passing through 20 feet soil and 460 feet of gypsum, anhydride and marl.

The total thickness of the salt deposits is 1,197 feet, and this may be said to consist of:

This gives a composition of:

Rock salt . . .	989 feet.	Sodium chloride . . .	85·82
Anhydride . . .	36 "	Potassium chloride . . .	1·67
Corrallite . . .	98 "	Magnesium sulphate . . .	4·70
Kieserite . . .	51 "	Calcium sulphate . . .	4·88
Polyhalite . . .	13 "	Magnesium chloride . . .	2·53
Hydrated mag. chl. 13 "		Potassium sulphate . . .	0·40

100·00

Besides their scientific interest, these vast salt deposits with their excellent mines have a considerable interest in the political economy of industry and commerce, since they are an almost inexhaustible supply for the modern chemical industry. Ch N. A. R. April, 1869, 178.

Origin of Rock Salt. The large sites of rock salt at present known belong to either secondary or tertiary formations; those of the Devonian and Silurian deposits appear to have been formed by the evaporation of then existing seas, by the action of the heat of the interior of the globe. The saline deposits and beds of gypsum of the triassic period are neither due to evaporation nor sublimation, and appear to have been rather formed by saline waters, saturated solutions of salt, from springs, running into the then existing seas, and causing such a supersaturation as to bring about a deposit of chlorides and sulphates. The saline springs, salt springs of the cretaceous period, may be the result of fresh water which has become saturated with salt while traversing deeper lying beds thereof, and being afterwards forced up by hydrostatic pressure. It may be said that a continuous diminution of sea-water has been taking and is actually taking place, from the first existence of a sea on our globe, either by chemical action or by infiltration. Dr. A. Boné, in Les Mondes, June 10, 1869.

AMMONIUM.

Liquor Ammonia. C. Rehsteiner instituted comparative experiments in order to determine the delicacy of Bohlig's method to detect the quantity of ammonia contained in waters by means of mercuric chloride and potassium carbonate, and that of Nessler, (mercuric biniodide in solution with potassium iodide and potassium hydrate). The experiments with exactly titrated ammoniacal waters, proved in favor of Bohlig's reagent. This gives a white precipitate with a water containing 100.000 ammonia, a white turbidity after a few minutes with a water containing 500.000 ammonia, and still yields a visible reaction after five minutes, when a water contains but one-millionth part of ammonia.

Nessler's test does not react with waters containing less than 500.000 ammonia. Schweiz. J. Ph. 1868, 112.

Diammoniac Carbonate, or normal ammonia carbonate, has not yet been obtained in a solid state. E. Divers succeeded in preparing it by maceration of the commercial ammonia carbonate in liquor ammoniæ; the remaining undissolved mass is the diammoniac carbonate; by introduction of some free ammonia gas, all is dissolved. Then some new carbonate is added and its solution is accomplished by heating the whole. When cooling, the whole mass becomes filled with diaphanous crystals, which are collected and quickly dried upon unsized paper. This diammoniac carbonate forms shining needles, readily soluble in water and in about 70 parts alcohol. They decompose readily in the air, evolving ammonia gas and finally leave a powder of mono-ammoniac carbonate, the so-called bicarbonate. N. Rep. Ph. 18, 179.

Mono-ammoniac Carbonate, the so called ammonia bicarbonate, which is formed in considerable quantities on the sides of casks in which the commercial ammonia-sesquicarbonate is imported, is recommended by W. Procter, Jr., as a reliable remedy in certain gastric affections, and as a good antacid. A. J. Ph., July 1869, 294.

Ammoniac Pyrogallate is obtained in small white crystals when a solution of pyrogallic acid in ether is saturated with ammonia gas. Hager Centr. H., 1869, 10.

A novel very delicate reagent for alkalies, particularly for Ammonia. Prof. Böttger recommended, some time ago, the coloring principle of *Coleus Verschaffelti* as a delicate reagent for alkalies. More recently, he ascertained that the extract from the alkanet root surpassed in delicacy all known reagents for this purpose. It is used by saturating paper with a diluted alcoholic solution of the extract; before use the paper is moistened with distilled or pure water. Alkalies, and particularly ammonia, turn the red color into blue.

SILVER.

Argentio Dioxide is formed, according to F. Wöhler, on the silver plate at the positive pole of a Bunsen's battery, when the electric current is made to pass through water acidulated with sulphuric acid, or through a solution of sodic sulphate. Goettinger Nachrichten. 1869, 139.

Prof. Stas suggests a modification of Gay-Lussac's method of *estimating silver in the wet way*, who employs a standard solution of sodium chloride; but since the precipitated silver chloride is soluble in a solution of salt, it is impossible to carry out this principle to the minute accuracy which is frequently required. Stas has now discovered that, by substituting a bromide for the chloride in precipitating silver, this error may be entirely removed.

Argentio Chloride. According to Graeger, an ammoniacal solution of argentic chloride is completely reduced by placing therein lumps of zinc in excess and frequently shaking. When the fluid, on a drop thereof being tested, no longer yields a precipitate with hydrochloric acid, the operation is finished; the silver is then separated by pouring the fluid off from the spongy mass, and washing by decantation; the pieces of zinc having been removed, the spongy silver is washed with pure, strong hydrochloric acid, and next with water. N. Jahrb. Ph. xxix, 10.

DYAD METALS.

BARIUM.

Among recent mineral discoveries along the Apalachian section of the Atlantic coast are deposits of Barium-compounds. A. D. C. Sept., 1868, 241.

CALCIUM.

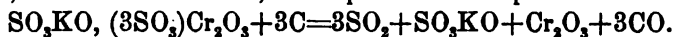
Calcium Carbonate. For the preparation of pure calcium carbonate, Graeger suggests the following process: Calcium hydrate is digested with so much of a solution of ammonia nitrate that the former is in excess; after a time the solution is filtered; the filtrate is a solution of pure calcium nitrate with some free ammonia hydrate; if washed carbonic acid is passed through the solution all the lime is precipitated, which process may be made perfect by the final addition of some ammonia carbonate. The precipitate is washed and dried. N. Jahrb. Ph. 29, 158.

Calcium Phosphate. Dusart and Pelouze state that gelatinous calcium phosphate, when kept in water saturated with carbonic acid, absorbs this gas, and thereby loses one equiv. CaO,

its constitution and formula being changed to 2CaO , HO , PO_5 , 5HO . This calcium phosphate is a white granular crystalline body, slightly soluble in water, (28 : 1000) but more soluble in water charged with carbonic acid. Ch. N. A. R. Sept., 1868,

ALUMINIUM.

Chromium Alum. The manufacture of aniline green and violet, and of valerianic acid, give abundant residues of this alum. They cannot be used as mordants, because, when calcined, they are insoluble in water. M. F. Jean found that when chromium alum, previously mixed with three equivalents of carbon, is heated to redness, decomposition takes place as follows :



If, on the other hand, chrome alum be decomposed with seven equivalents of carbon, the evolution of sulphurous acid is less than in the first case, and the mass taken up by the water yields potassium sulphide and hyposulphite; the chromium sesquioxide obtained under these conditions must be separated, by washing with acidulated water, from chromium sulphide, formed by contact with the potassium sulphide.

It is, however, better to decompose the alum with three equivalents of carbon than with seven, because the decomposition is quicker and purer. Comp. rendus, 1868.

ZIRCONIUM.

The German chemist Klaproth discovered, in 1789, a metallic oxide in a mineral brought from Ceylon, and occasionally cut and polished as a gem. As this mineral had long been known under the name of zircon, the new earth received the name zirconia. The same oxide was likewise found in the stone known as "hyacinth." About three years ago Prof. Church examined zircons under the micro-spectroscope, and observed that some of them exhibit peculiar absorption bands, not given by zirconium silicate. Mr. H. C. Sorby, not knowing of Church's observation, and engaged with the examination of Ceylon zircons, found that the luminous spectrum is traversed by more than a dozen well defined, narrow, black lines. As these absorption bands are not given by any other substance, Sorby regards

them as indicating the presence of a new earth associated with zirconium, and as they are exhibited chiefly by those pale colored varieties of zircon, which are known as jargon, he proposes to name the new metal jargonium, while Church has suggested for this supposed element the name of nigrium. It would appear, from Sorby's further research, that the earth jargonium is capable of existing in two allotropic conditions, having different densities and optical properties. Ch. N. A. R. March—June, 1869.

LANTHANUM.

Since the determination of the atomic weight of this element has only been derived from the barium sulphate obtained from lanthanum sulphate, and since it has been found that this method is incorrect, in consequence of there being precipitated, with the barium sulphate, undecomposed lanthanum sulphate, W. Casseimann has estimated the correct quantity of sulphuric acid which combines with lanthanum oxide, by means of ignition. From a long series of experiments, which agreed, he has deducted the atomic weight of lanthanum to be 45, and that of its oxide 53. Zeitsch. f. anal. Ch. 1869.

MANGANESE.

Manganous Sulphate. C. J. Rademacher suggests, for the preparation of pure $\text{SO}_4 \text{ Mn } 7\text{OH}_2$ from the crude salt, the following successive transformation: The sulphate is decomposed by sodium carbonate, the manganese carbonate is redissolved in acetic acid, the solution treated with sulphhydric acid, heated, filtered and again decomposed by sodium carbonate; the manganese carbonate is finally dissolved in diluted pure sulphuric acid. If copper only is present it is not necessary to convert the manganese into acetate, since copper is precipitated from the sulphate. A. J. Ph. May. 1869, 216.

For the preparation of the manganous sulphate from the liquid remaining after the generation of chlorine, F. Mahla suggests the following method: The liquid is supersaturated with sodium carbonate, the precipitate is washed, and then three-fourths of it are dissolved in a sufficient quantity of diluted sulphuric acid. The solution is heated to near its boiling point and then

the reserved one-fourth of the precipitate is gradually added until the liquid, after filtration, ceases to yield a black color on addition of gallofannic acid solution. The solution is then crystallized. In case the first crop of crystals contains some calcium sulphate, owing to the presence of calcium carbonate in commercial peroxide or manganese, the pure sulphate is obtained by evaporating to dryness, redissolving in some water, when the less soluble calcium sulphate remains behind. Chicago Pharm. March, 1869.

ZINC.

The well-known method of *purifying metallic zinc* by melting with sulphur has been improved by Gunning's suggestion to pack the zinc in the crucible with alternate layers of a mixture of sulphur and dehydrated sodium carbonate. N. Tijdschr. voor de Ph. in Nederl. 1866, 56.

Zinc Phosphide has been introduced as a new mode of administering phosphorus by M. Vigier, of Paris. It is prepared by passing the vapor of phosphoretted hydrogen over zinc heated to redness. The gas is evolved from phosphor-calcium by means of hydrochloric acid. It is thus obtained either crystalline or spongy, or fused, but always of the composition PZn_3 . Experiments made with this compound by Proust and Dujardin show that the phosphorus retains but half the poisonous effect it possesses in the pure state. N. Rep. Ph. xviii. 287—293.

MERCURY.

Detection of Mercury in Poisoning cases. L. A. Buchner employed the following method when searching for mercury in the remains of a person poisoned by corrosive sublimate. After the organic remains have been disintegrated by a hot mixture of potassium chlorate and chlorhydric acid, the solution is diluted and saturated with sulphhydric acid. After the lapse of some hours, the sulphide formed is collected, dissolved in aqua regia, and reduced by evaporation to a small volume. A little water being added, a bright piece of copper wire is placed in the liquid, and when mercury is present the wire becomes grey, at the latest, in two days. The copper is withdrawn, dried and heated in a wide test tube. The mercury is more easily distinguished

by removing the wire, and placing in the tube a drop of tincture of iodine. N. Rep. Ph. xvii. 386.

L. Riederer instituted a series of experiments for the purpose of studying the physiological effect of mercury upon the animal system, and to establish the *accuracy of the usual methods for the detection of mercury in the animal organism*. Having remarked that the mercuric sulphide which is formed in the above process of Buchner always contains organic matter, he applied dialysis in the following mode: After disorganization with potassium chlorate and chlorhydric acid, the mercury in solution is precipitated by sulphhydric acid, the sulphide collected dissolved in a mixture of potassium chlorate and hydrochloric acid, and dialysed with 500 c. c. of water; at the end of five days the water is evaporated and the dialysis repeated. After this treatment the solution is again saturated with sulphhydric acid; the precipitate is washed with ammonia and ammonium sulphide, then with weak nitric acid, and finally treated afresh with chlorhydric acid and potassium chlorate.

Operating upon dogs with calomel, L. Riederer has recognized that the greater part of the mercurial compound is eliminated by the excrements, and that of the rest, more collects in the liver than in the muscles. N. Rep. Ph. xvii. 237.

Mercuric Oxide, as usually assumed on the authority of H. Rose, will displace only such bases out of their chlorides which do themselves not precipitate the oxide or oxychloride. M. Fonberg states, in the *Annal d. Chim. et Ph.* 1868, that the chlorides of the alkalies and the alkaline earths are also acted upon when shaking or boiling their saturated solutions with mercuric oxide.

Mercurammonium-chloride. Prof. Attfield, in a communication to the Brit. Pharmac. Conf., states that on examining six specimens of white precipitate in reference to their volatility, fusibility and percentage of mercury, he found them all volatile, but only one fusible, and their percentage of mercury varying from 72 to 76.59, while the theoretical proportion is $79\frac{1}{2}$ per cent. Attfield attributes this deficiency to the fact that the commercial white precipitate is not sufficiently washed from the ammonium chloride, and suggests that the pharmacopœias, in

order to exclude impure mercurammonium-chloride, or such containing undue proportions of ammonium-chloride, ought to insist upon the character of volatility as well as upon a percentage of not less than 78 per cent. mercury. London Ph. J. March, 1869, 515.

TETRAD METALS.

LEAD.

Boettger states that the *action of water on lead* seems to be due mainly to the presence of ammonium carbonate in the water, and not, as is usually ascribed, to the air and carbonic acid dissolved in the water. The author states further that the alloying of the lead with a small amount of tin protects the former from being acted upon, and this fact suggests the advantage of introducing a little tin into the metal from which lead piping is to be manufactured. Dingler's Pol. J. 1868.

Plumbic Monoxide. Commercial litharge contains, not unfrequently, metallic lead to the amount of six per cent. A. Vogel confirmed Hartmann's suggestion (N. Jahrb. f. Ph. 80, 172,) that by simple levigation the whole amount of lead can be removed. N. Rep. Ph. xviii, 22.

Plumbic Carbonate. A. Girard has recently invented a new process for the manufacture of white lead. The granulated lead is placed in a rotating cask with one-fourth of its weight of pure water. The cask is made to rotate at the rate of thirty or forty turns a minute, and arrangements are made for the passage of a current of air during the rotation. After about two hours, nearly the whole of the lead is found to be oxidized, and then carbonic acid is introduced in the place of the current of air, and the rotation continued for four or five hours further. At the end of this time nearly the whole of the lead is found to be converted into hydrated carbonate, which can be separated from the metal by decantation. Ch. N. A. R. Sept., 1868, 149.

IRON.

"*Heaton's Steel and Iron Process*" is the title of a comprehensive essay in the Chem. News A. R. April, 1869, on the

present state of the modern steel manufacture, and of the latest experiments about this important subject. The great interest in Heaton's process is proportionate with its scientific and commercial object—the production of good steel and wrought-iron from impure pig-iron. The use of crude pig-iron is the chief point which distinguishes Heaton's method from all old and modern steel processes, since these all require the employment of pure iron, or iron ore free from phosphorus and sulphur. This requirement much limits the application of Bessemer's valuable process. Heaton's process, as is well known, differs from Bessemer's in employing sodium nitrate as the oxidizing agent, instead of atmospheric air; it would afford a great success if it were found to come fully up to what its advocates assert, but what has still to be established by experience and more extended application.

It is the same with Ellershausen's recent suggestion, to convert crude cast-iron into wrought-iron by the simple admixture of pulverized iron ore during the smelting, whereby carbon and the impurities are oxidized and removed, as in the puddling process.

Iron Oxides. Solutions of the various hydrates of the ferric oxides are, as is well known, liable to gelatinize. Hager is inclined to account for this reaction by the presence of slight quantities of manganese. Centr. Halle, ix, 287.

Hydrated Iron Oxides by Dialysis. The so-called soluble hydrated ferric oxides were first introduced by St. Gilles, and by dialysis, in 1861, by Thos. Graham. Since then they have continually been the subject of numerous researches and studies, and have given rise to quite a literature about the subject, the principal contributions being from St. Gilles, R. Wagner, Grossinger and Hager. These labors, running through a number of years, are very extensive, not seldom contradictory, and leave the whole subject, in some points, a still open question.

Among the noteworthy publications during the last few years, Hager's "on the nature of the dialyzed ferric oxides" is the most interesting. The formula of the dry dialyzed ferric oxide is $\text{Fe}_2\text{Cl}_3 + 12\text{Fe}_2\text{O}_3 + 3\text{H}_2\text{O}$; when exsiccated on glass it forms dark brown scales, readily soluble in water, which quality they

lose more or less by warming. The solution is dark brown, tastes but slightly styptic, and does not change when exposed to air and light. With argentic nitrate it yields only a slight reaction. The hydrates and carbonates of the alkalies precipitate the hydrated ferric oxide, which reaction is, however, prevented by a previous addition of sugar. Acetic and arsenious acids mix with the solution, while the other common acids, concentrated as well as diluted, form yellow or brown precipitates, which, however, seem to be composed in accordance with the above formula, since they, like the soluble ferric ferrocyanide, redissolve as soon as the acid has been washed out. Ammonium sulphhydrate precipitates the iron completely in the form of ferric sulphide.

Dialyzed Ferric Oxide in the dry as well as in the dissolved state are valuable iron preparations in medicine, but their application as an antidote in cases of poisoning with arsenic cannot be considered legitimate before their effect in this respect has fully been established. As has been mentioned, arsenious acid mixes with the iron solution without any reaction, and the precipitate produced by arsenic acid contains hardly any arsenic acid, so that this mainly remains in solution. Dialyzed ferric oxide, when used as an antidote to arsenic, has therefore first to be precipitated by ammonia solution. Hager recommends for this purpose experiments with a mixture of magnesium hydrate with a solution of dialyzed ferric oxide.

Hager succeeded to prepare from the officinal concentrated liquors of ferric chloride, ferric acetate, etc., by careful precipitation with ammonia and subsequent solution in some of the iron liquor, avoiding any warmth, a modification of iron analogous in every respect to the dialyzed ferric oxide. Centr. H., ix, 217.

Saccharated Ferric Oxides. Recently the so-called saccharates of iron have attracted much attention; they are prepared in the dry state as well as in the liquid form. The formula for the latter was first published by H. Hager, (Ph. Cent. Halle viii. 37); Wittstein analyzed and published the formula of Fleischer (Viertelj. Sch. pract. Ph. xvi. 211). This syrup of saccharate of ferric oxide is not of novel date; it has been known for more than twenty-five years as a French secret medicine, whose

formula is given as "sirop ferreux du Docteur Dusourd in Dorvauld's l'officine, septième éd. p. 492.

The method of the preparation of the saccharated ferric oxide is given by S. Siebert in Pharm. Cent. H. 1867, No. 41, and in Am. J. Ph. July, 1869, 324. More recently Drs. Köhler and Hornemann (Berlin. Klin. Wochenschrift, 1868, N. Rep. Ph. xviii, 36, A. J. Ph. July, 1869. 326) have suggested a method whereby a modification of hydrated ferric oxide of iron is obtained readily soluble in sugar solution and in glycerin. Equal weights of a solution of sesquichloride of iron, containing 15 per cent. iron, and simple syrups are mixed, sodium hydrate is then added until the precipitate is redissolved, the filtrate is mixed with a large quantity of water, and boiled for some time. The presence of the neutral sodium chloride is sufficient to precipitate the hydrated ferric oxide in its soluble modification. The precipitate is collected upon a filter, washed until the filtrate ceases to react with argentic nitrate, dissolved with powdered sugar, the solution evaporated to dryness and the residue reduced to powder.

This preparation is readily soluble in water without any styptic taste and without being changed by boiling. It is chemically very indifferent, not precipitated by any of the common reagents for iron, except by ammonium sulphide and gallo-tannic acid. But the addition of neutral salts gradually separates the entire quantity of the hydrated ferric oxide; by dilution and boiling the effect is produced instantly. The acids transform this soluble modification into the common hydrated ferric oxide under decoloration and with its usual reactions.

Since this preparation has no styptic taste, it can be administered in milk, soups, coffee, and other convenient kinds of food. Its pretended reliability as an antidote to arsenic requires more extended experiments and experience.

The chemical nature of this ferric oxide has been established by Hager, (Ph. Cent. Halle 1869, 203.) He found that pure hydrated ferric oxide is completely insoluble in sugar and in glycerin, and that the composition of this modification of ferric oxide, believed to correspond to the formula $\text{Fe}_2\text{O}_3 + 6\text{HO}$, is not correct. Hager proves that the solution of all these saccharated

ferric oxides are due and solely depend upon the presence of some hydrated alkali, which is in Köhler and Hornemann's preparation potassa and in Siebert's ammonia.

Ferrous Oxalate. A. Vogel, in 1855, suggested a method for obtaining ferrous oxalate by decomposition of ferrous sulphate with oxalic acid. Schaeffer and Moore published the same process in the Am. J. Ph. xvi. In the same year Vogel called attention to the loss by this method, inasmuch as the sulphuric acid which is set free, keeps in solution nearly half the amount of the ferrous oxalate; he recommends, therefore, to dip metallic iron into the filtered solution, whereby all the oxalate is precipitated, whilst the original quantity of ferrous sulphate is restored. This method is also approved by Reynolds. London Ph. J. viii, 422.

The ferrous oxalate, when subjected to ignition, furnishes a polishing material equal to the best emery. Wigg. Jahr. ber. 1868, 227.

Ferric Pyrophosphate. The process of the U. S. Pharm for this preparation gives often a magma which scales but imperfectly; Dr. S. P. Duffield succeeded in preparing it so that it always scales very well. His modification of the officinal process is this:—the magma obtained from $8\frac{1}{2}$ ounces of sodium pyrophosphate is digested with one pint ammonia solution for six to eight hours; then six ounces citric acid, dissolved in two pints of water, are gradually added until the ammonia is neutralized and the precipitate is dissolved. After filtering and evaporation, the syrupy liquid is spread on glass and scaled. The chemical difference of the result is, that in the process of the Pharmacopœia the iron is pyrophosphate, while in Duffield's it is probably the ferric citrate. Proc. A. P. Ass. 1868, 403.

Sodium and Ferric Pyrophosphate is obtained by mixing a solution of 8 oz. sodium-pyrophosphate in 14 oz. water to a solution of 11 drams ferric-chloride solution of 1.526 spec. gr. and 6 oz. water. The precipitate which ensues redissolves. An equal volume of alcohol is then added to the solution, whereby the sodium and ferric pyrophosphate is precipitated as a white crystalline powder, which is collected, washed with alcohol and dried. Hager. Centr. H. 1869, 14.

Ferrous Iodide in scales is obtained by preparing a concentrated solution of ferric iodide from 2 parts iron, 8 parts iodine, and 15 to 20 parts water.

The solution is filtered into a thick mucilage, prepared by evaporation of a solution of 5 parts sugar and 75 parts gum arabic. The mixture is now further evaporated to the consistency of an extract, spread on warm glass plates and dried. The scales contain 10 per cent. ferrous iodide. Hager. Centr. Hal. 1868, 296.

Ferrous Sulphate. M. Welborn states that protosulphate of iron is absolutely preserved and kept from even the least trace of oxidation, by placing with it a piece of camphor, or by wrapping it in a piece of clean and dry paper. Deut. Ind. Zeit. 1869.

NICKEL.

Nickel sulphate, in a communication to the Richmond Medical Journal is recommended as a valuable sedative, producing sleep where Dover's powder and other opiates are contra-indicated. A. J. Ph. Nov., 1868, 376.

COBALT.

Estimation of Cobalt in the presence of Arsenic. The method for the volumetric determination of cobalt in presence of nickel is, as well known, inapplicable in cases where oxygen compounds of chlorine, sulphur, arsenic and phosphorus are present. This method, proposed by Winkler, consists in first mixing with the solution to be tested mercuric oxide, and then adding a standard solution of potassic permanganate. The injurious action of arsenic and phosphoric acid may, however, be avoided by precipitating them as arseniates and phosphates of iron, by adding a proportionate quantity of pure ferric chloride, an excess of which is removed from the solution by the subsequent addition of mercuric oxide. Sulphuric acid is removed by means of baric chloride. Zeitsch. f. anal. Ch. vii, 47.

PENTAD METALS.

ANTIMONY.

Prof. Attfeld states that *metallic antimony reduces ferric to ferrous salts*, the antimony becoming dissolved by the influence of the excess of acidulous radical contained in the ferric salts over

and above its amount in the corresponding ferrous salts; that, therefore, in precipitating antimony by iron, and in order to separate it from tin and with the view of quantitatively estimating the antimony, air must be excluded until all ferrous salt is washed away. London Ph. J. March, 1869, 512.

The antidotes of antimony, especially of tartar emetic and butter of antimony have been the object of study by R. Bellini. For the former the hydrates of ferric sulphide are suggested as the best antidote, since they completely precipitate antimoniates. Sulphhydic acid solution acts equally well, but is objectionable on account of its repugnant qualities.

Gallo-tannic acid and decoctions of vegetable substances containing this acid do not precipitate completely the antimony, and the antimonious tannates are not entirely insoluble in the animal system.

As antidotes to the trichloride of antimony, Bellini recommends albumen, vegetable gluten, magnesium hydrate and alkaline solutions which combine with the antimony as well as with the acid. Gallo-tannic acid as well as sulphhydic acid are objectionable because they only bind the antimony, leaving free the acid; hydrated ferric sulphide is also objectionable.

For the discharge of antimony retained in the system, Bellini recommends the use of tartaric acid, cream of tartar, citric acid, and lemon juice, by which the insoluble antimoniates are transformed into soluble ones. Viertelj. Sch. f. Ph. 18, 140.

In an examination into the *action of iodine on the hydrogen compounds of antimony and arsenic*, M. Husson has discovered a reaction which may furnish a useful application in toxicological researches. He finds that antimonious and arsenious hydrides form the corresponding iodides when the gases are made to pass over iodine. A tube containing a small piece of iodine being joined to the Marsh's apparatus, gentle heat is applied to volatilize the iodine, which, upon condensation, lines the tube. Then, while the tube is still warm, the gas is allowed to pass. If this contains arsenious hydride, the iodine will be bordered by a yellow line formed of little straw-like masses, having much analogy with iodoform; the iodine disappears completely. With antimonious hydride the reaction is less manifest; all the iodine

collects forming a deep orange- or brown-tinted ring. But the action of heat enables these two iodides to be distinguished thus: the yellow arsenious iodide is transformed, one part into red iodide with disengagement of iodine, the other volatilizes in the state of yellow vapors, which are received on unsized paper; the same phenomenon is produced under the influence of an excess of arsenious hydride, whence M. Husson is inclined to conclude that an arsenious periodide is first produced. Antimonious iodide, on the other hand, evolves red vapors, and leaves a little reduced antimony. *Quart. Sci. Rev.* Jan., 1869, 106.

The Sulphates of the Antimonious Oxide have been the subject of a series of studies by W. P. Dexter. Based upon the recent researches of Schultz and Peligot, and the earlier investigations of Brandes, W. P. Dexter, searching for the composition and constitution of those sulphates, succeeded in obtaining a series of antimonious sulphates sufficiently pure for analysis. These salts (bisulphate, tersulphate and the basic sulphates) are all crystalline, dissolve readily in hydrochloric acid, and with the exception of the disulphate, are decomposed by the action of water. The basic sulphates form a series of salts in which the oxide is united with two, one, and half an equivalent of acid. Besides these there appear to be others, which seem to be combinations of these simple salts. They occur under various conditions; but the degree of dilution of the acid seems to have the greatest influence in their production. The series of the antimonious sulphates resembles those of the oxides of glucinum and zirconium considered as sesquioxides. The neutral sulphate of neither of these earths combines with hydrate of sulphuric acid to form an acid sulphate. From bismuth the antimony series differs in that the salts of the former metal are decomposed by water and that bismuth oxide appears to form one, if not two, acid sulphates. *Amer. Journ. Sci.* 1868.

Antimonious Trichloride and Trioxide (Algaroth's powder) is obtained, according to L. Schæffer, by heating in a sealed vessel three molecules of alcohol with one molecule of antimonious chloride to 150° C. By heating one molecule of alcohol with one molecule of antimonious chloride to 160° C., the compound SbO_2Cl , chloride of antimonyle, also in the crystalline state, is formed.

The latter is insoluble in alcohol or ether ; water slowly decomposes it to oxychloride and chlorhydric acid. Ber. d. Deutsch. Ch. Ges. 1868, 81.

ARSENIC.

Formation of Arsenic Sulphides in the corpses of persons poisoned with arsenious acid. L. A. Buchner found in the stomach of a corpse exhumed eight weeks after death, and which had died from the effect of arsenious acid, arsenic sulphide. Buchner accounts for its formation by the rise of ammonium-sulphhydrate which decomposes the arsenious acid, forming soluble sulph- and hyposulph-arsenites, which afterwards, by the oxidation of the solvent are reduced to the corresponding arsenic sulphides. N. Rep. Ph. xvii, 386.

Detection of Arsenic. Chs. E. Every has instituted a number of experiments on the well known silver nitrate test for arsenic acid. It is known that arseniate of silver is slightly soluble in an aqueous solution of ammonium nitrate, and readily soluble in both ammonia and dilute nitric acid ; it is not easy to detect small quantities of arsenic by means of silver nitrate, as usually employed, unless the test be applied with great care. Every found that the addition either of sodium or ammonium acetate, or Rochelle salt, to a mixed solution of arsenic and nitric acids, is sufficient to insure the immediate precipitation of argentic arseniate when ammonio-argentic nitrate is introduced. Instead of the acetates or tartrates, recently precipitated argentic carbonate may be employed to neutralize free nitric acid. When present in relatively large quantity, arsenic acid readily precipitates silver from a solution of ammonium variable and ammonio-argentic nitrate, but the color is variable. Am. J. of Sci. & Arts, March, 1869.

Dr. R. Müller has constructed a simple *apparatus for the ready detection of arsenic and antimony* in minute quantities, for the use of physicians. It consists of a small test tube capable of containing 15 cubic centimetres ; this is half filled with dilute hydrochloric acid, and closed by an India rubber stopper. A second stopper of the same material is furnished with a glass tube 3 millimetres wide, and about 4 centimetres long, bent at

right angles, one end drawn out to a point about 1 m. m. wide. To test the contents of the stomach, a few pieces of sheet tin are put into the acid, so that a strong evolution of hydrogen takes place, and the test tube is closed, after a few seconds, with the stopper bearing the glass tube. The escaping hydrogen is then lighted, and the flame directed against the cold surface of porcelain. If a dark spot shows itself, it may be arsenic or antimony, which can be distinguished by touching with a drop of Javelle's fluid, which dissolves arsenic but not antimony. Berlin. *Klinische Woch. Sch.* 1868.

Sensitiveness of the usual methods for the detection of Arsenic. M. Frank arrived, after a series of experiments, at the following results: Marsh's apparatus admits of detecting 0.0003 milligramme arsenious acid dissolved in 150,000,000 of liquid; the method of von Babo and Fresenius admits of detecting 0.002 milligramme arsenious acid; Reinsch's method, by means of copper, detects 0.001 milligramme arsenious acid in 5,000,000 of liquid; Rieckher's method, by means of ammoniacal argentic nitrate solution, detects 0.002 milligramme in 3,000,000 parts of liquid. *Ph. Z. Russl.* April, 1869, 244.

Detection of arsenical Pigments. C. Puscher advises the use of liquid ammonia for the detection of these pigments, all of which are soluble therein, exhibiting a blue-colored solution, if copper is at the same time present. On the evaporation of the solution there remains a dirty greenish-colored precipitate of arsenite of cupric oxide. C. Puscher advises to paint some white paper with this solution in ammonia, which painting, when dry, if arsenic were present, will exhibit a dirty greenish color, but if, after drying, a blue color has been imparted to the paper the pigment is free from arsenic, and only consists of a compound of copper, of which latter metal there are several in use as green and blue pigments, all soluble in ammonia, except such admixtures as do not essentially belong to the pigment itself. *Deut. Ind. Zeit.* Mai. 24, 1869.

BISMUTH.

C. A. Wood states that fusion with nitre removes copper from bismuth only partially. *London Ph. J.* Jan., 1869.

Basic Bismuth Nitrate. M. Roussin, (Journ. de Phar. & Ch. 4 ser. vii. 180) and C. Redwood (London Ph. J. 2 ser. x. 88) have contemporaneously called attention to the adulteration of the basic bismuth nitrate with calcium orthophosphates. Mr. Roussin's method of detecting this adulteration has already been published in the report to the Am. Ph. Ass. of last year, as well as in the Am. J. Ph. 40, 334.

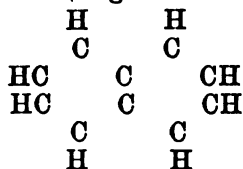
For this test, Messrs. Howard and Hornsby suggest the following modification as being necessary, since continued boiling causes a precipitate of bismuth itself when no phosphate is present: To one part of the sample to be tested, dissolved in weak nitric acid, add two parts of citric acid, dissolved in a little water, then add an excess of ammonia and boil. Any phosphate present will be thrown down on continuous boiling of the solution. London Ph. J. 1868, x. 347.

CHEMISTRY OF THE ORGANIC BODIES.

HYDROCARBONS.

Eighth series. $C_n H_{2n-12}$.

Naphthalene. C. Graebe publishes, in A. Ch. & Ph. 149, 1, his elaborate and critical studies on naphthalene, its chemical constitution, and its derivatives. He agrees with Erlenmeyer (Ann. Ch. & Ph. 137, 346.) that naphthalene is to be represented as constituted by two combining benzene units by this formula:



Fifth series. $C_n H_{2n-6}$. Aromatic Hydrocarbons.

Xylene. R. Fittig, W. Ahrens and L. Mattheides continued their elaborate studies on Xylene and the identical Methyltoluene and their derivatives and substitutions.. A. Ch. Ph. 147, 15.

Mesitylene. R. Fittig and W. H. Brückner continued their extensive studies on mesitylene and its derivatives, and R. Fittig

and J. Storer on the substitution products of mesitylene. A. Ch. Ph. 147, 1, 42.

Pseudo-cumene. R. Fittig found that the isolation of cumene is very difficult, and that most so-called cumene, even when its boiling point is constant, is a mixture of several isomeric hydrocarbons, containing but little pseudo-cumene. Fittig succeeded in preparing two bromide substitutions, the dinitro-bromide-pseudo-cumene, $C_9H_7(NO_2)_2Br$ and dibromide-pseudo-cumol, $C_9H_{10}Br_2$. A. Ch. Ph. 147, 11.

ALCOHOLS AND ETHERS. MONATOMIC ALCOHOLS AND ETHERS.

ETHYL ALCOHOL.

The recent labors on, and contributions to, the manufacture of alcohol, which properly belong to the domain of technical chemistry, are compiled in Chem. Centr. Blatt. N. F. xiii. 1025—1039.

Formation of a volatile alkaloid during the alcoholic fermentation. Some years ago, Lerner called attention to a volatile alkaloid in beer. Recently, Oser has found the same basis as a product of the vinous fermentation, and has obtained and examined this new alkaloid; its formula is said to be $C_{28}H_{40}N_4$. Wittstein proposes the name Tigrin for it. J. f. Pract. Ch. 103, 192, & Viert. J. Schrift f. Ph. xvii. 440.

Alcohol from Lichens. M. Stenberg, with the idea to utilize the enormous quantities of Swedish lichens by transforming them into glucose and alcohol, succeeded best with *Cladonia rangifera*, H. Boiling it for twelve hours in water containing $12\frac{1}{2}$ per cent. sulphuric acid hydrate, he obtained sixty-six per cent. glucose, which yielded a good alcohol with a slight flavor of bitter almonds. A. J. Ph. Jan. 1869, 17.

Ethyl Iodate is, according to K. Lisensko, obtained by acting upon argentic iodate by a mixture of equal volumes of ethyl iodide and dry ethyl oxide. If the temperature is not allowed to rise above $10^\circ C$. the liquid remains colorless and the new ether undecomposed. The solution distills between 37° and 40° . The distillate at first floats upon the water with which it had been mixed, but on passing a current of air through the liquid,

in order to drive off ethyl oxide, it sinks to the bottom of the vessel. All attempts at further purification failed. The liquid boils at 75° C. under decomposition. Zeitsch. f. Ch. N. F. iv. 455.

Detection of Methyl Alcohol in Ethyl Alcohol. In England and Holland alcohol used for scientific and technical purposes pays no duty, and in order to make it unfit for the manufacture of liquors, is admixed with one-eighth of its volume methyl alcohol. Therefore it is frequently required to examine alcohol for this admixture. For this reason, and in order to establish the deportment of pure and of mixed alcohol to reagents, as well as the reliability of the known methods, especially those of Tuck, of Reynolds, and of Miller and Young, for the detection of the admixture of methyl-alcohol, Dr. Gunning instituted a series of elaborate experiments. The author thinks Miller and Young's oxidation test the most reliable. N. Tijdschrift. v. Ph. in Nederland, 1868, 58.

Another apparently good test is recommended in the Tijdschrift v. wetenschapl. Ph. iii. 359, by Polack. It depends upon the circumstances under which iodoform is formed far more readily from methyl alcohol, than from ethyl alcohol. The sample is examined by carefully pouring it upon a stratum of sulphuric acid in a wide test tube, so that no heat is evolved. If the alcohol contains methyl alcohol, at the contact of both fluids a yellow cloud or coloration arises.

(This test has recently been proved to be very doubtful, since the reaction only takes place when a considerable proportion of methyl alcohol is present.)

Detection of Alcohol in Liquids. The Journ. de Pharm. 1868, gives the following method for the detection of alcohol:—The liquid to be tested is mixed with a portion of platinum-black in a small flask, heated to 124° F., agitated and filtered. A few drops of caustic potassa are added to the filtrate, which is then evaporated to dryness. The residue is mixed with a little arsenious acid, and subjected to heat. If alcohol has been present, cacodyl is produced, recognizable by its odor.

Estimation of Ethyl Nitrite in Sweet Spirit of Nitre. John

T. Miller has suggested a method to estimate the quantity of ethyl nitrite in nitrous ether, depending upon the color reaction of the former with solutions of cupric salts. The copper solution is made by dissolving 200 grains pure copper in the necessary quantity of nitric acid; the solution is evaporated to dryness, the residue dissolved in four to five ounces water; any excess of acid is neutralized by soda lye; then sixty grains crystallized sodium acetate and so much water are added as to make the whole ten ounces.

In order to estimate the ethyl nitrite in samples of nitrous ether, two one-ounce flasks are used, each half-filled with this copper solution; to one of them the sweet spirit of nitre to be tested is added from a graduated burette until the liquid assumes a blue green tint. To the second flask a standard liquid, composed of 5 vol. true ethyl nitrite and 95 per cent. ethyl alcohol, is added in the same way, until the same color is obtained. From the quantities of both the standard liquid and the sample required to accomplish the reaction, the percentage of the ethyl nitrite contained in the sample is readily calculated.

In case the sample contains free acid, and consequently colors a weak potassium iodide solution, it has, previously to testing, to be shaken with some calcined magnesia. Zietsch. f. Anal. Chem., 1869, 279.

METHYL ALCOHOL.

Artificial Methyl Alcohol. E. Linnemann succeeded in converting methylamine, prepared from cyanhydric acid, according to Mendius' method, into methylic alcohol, by means of argentic nitrate. The identity of the alcohol thus obtained with the methyl alcohol from wood spirits, is proved by their equal boiling point. Ann. Ch. & Ph. 145, 42.

Conversion of Methyl into Ethyl Alcohol. A. Siesch converted acetonitrile, prepared by acting upon potassic methyl-sulphate with potassic cyanide, into ethylamine, and obtained from the nitrite of that base alcohol, which was found to be a mixture of ethylic and methylic alcohol, in the approximate proportion of four to one. The author explains the presence of the latter by the assumption that, during the decomposition of the nitrite of

ethylamine, the alcohol has been regenerated. Ann. Ch. Ph. 144, 46.

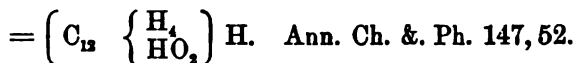
Methyl Bichloride has been first prepared in 1840 by Regnaud, from methyl alcohol; later it has been introduced by Dr. Richardson (London Pharm. Jour. 2 ser. ix. 234), as an anæsthetic. When pure it forms a colorless ethereal liquid smelling like chloroform; it is very volatile, and readily decomposed by light. Its anæsthetical properties are, according to Prof. Nussbaum, inferior to chloroform (N. R. Ph. xvii. 107). Trommsdorff (N. Jahrb. d. Ph. xxx. 148), found that all methyl bichloride from the English and German market was only a mixture of three parts of chloroform and one part of various methyl chlorides.

PROPYL ALCOHOL.

Normal Propyl Alcohol. H. Trommsdorff succeeded in determining the presence of this isomeric modification of the three-carbon alcohol in the fusel oil (amyl alcohol), one of the products of ordinary fermentation. He obtained it, together with trimethyl carbinol (Buttlerow's tertiary butyl alcohol, Zeitsch. f. Ch. x. Ph. 1864, 385 & 702.) N. Rep. Ph. xvii. 688.

SECONDARY AROMATIC ALCOHOLS.

Phenol. L. Glutz believes to have proved by its transformation into oxysulpho-benzid by means of sulphuric acid, that phenol is an oxyhydrate. The author has prepared and studied a number of the derivatives of the oxysulpho-benzid, and has come to the conclusion that phenol contains, besides the hydrogen of the hydroxyl, a second hydrogen atom, readily substituted, and that Kolbe's and Lautemann's (Ann. Ch. & Ph. 115, 180), formula for phenol is correct:—



Some differences between commercial Creasote and Carbolic Acid. Phenol and its commercial forms, its therapeutical, anti-septic and disinfecting applications, have been and still are the subject of researches and suggestions, among which those of Hlasiwetz and Bensow are valuable.

It is well known that creasote in an alcoholic solution of ferric

chloride gives a green tint, carbolic acid a brown, and that in a watery solution creasote has no reaction, while carbolic acid yields a blue color. Hlasiwetz gives the following distinguishing test:—with three or four volumes of saturated baryta water, creasote gives only an incomplete cloudy solution; carbolic acid gives a clear solution, which after standing deposits nothing, or only a slight pulverulent sediment.

In liquor ammoniæ, at common temperatures, neither creasote nor carbolic acid dissolve. On warming, creasote remains undissolved, and after shaking subsides again with a beautiful yellow tint. Carbolic acid forms a clear solution with warm aqua ammoniæ, but separates, after cooling, with a violet brown discoloration. In dilute potash-ley both dissolve, but creasote with difficulty. Creasote requires much ley for complete solution, otherwise a portion of the creasote separates during agitation as the solution cools; addition of ley clears up the solution. Carbolic acid gives a clear and permanent solution, with a little ley.

To two drops of liquor ammoniæ in a test-tube add a solution of ferric chloride of such strength that the precipitate is redissolved on the addition of about four volumes of water. When a few drops of creasote are added, the solution becomes first green, then brown. Carbolic acid gives a blue or violet tint. Vierteljah. Schrft. f. Zahnheilkunde, 1868.

The Amer. J. of Dental Surg. gives still another test:—Creasote, when shaken with equal volumes of collodium, forms a stiff, somewhat opalescent jelly, phenylic acid a viscous clear solution.

Phenates. It is well known that phenol dissolves in alkalis, forming salts called phenates, which, however, are difficult to obtain in definite form. J. Romei describes, in the Bulletin de la Soc. chim., Feb. 1869, the mode of preparation and the properties of the phenates of potassium, copper, mercury and quinia. London Ph. J. vol. x, 645.

Sulpho-phenates. Under the name sulpho-carbolates a class of salts have been recently introduced into medical practice. They are prepared by acting upon commercial carbolic acid with

sulphuric acid at a temperature of 280°F. or a little higher. They appear to possess the same properties as the crude carbolic acid, and if this proves to be the case, they will be preferable in many cases, since they do not possess the strong odor.

Dichlorphenol is obtained by passing a current of dry chlorine through phenol, and purified by repeated rectification and recrystallization from benzol. It forms fine, silky needles which fuse at 42° to 48° C. and boil at 209°C. It forms crystalline salts of no great stability. Its ethyl ether is obtained as a colorless oil, boiling at 226°C. Goett. Nachrichten 1868, 171.

Dinitrophenol. Since Lautemann has shown that trinitrophenol, under the action of iodhydric acid in statu nascenti, is transmuted into triamidobenzol (picramin), it was interesting to ascertain how dinitrophenol would be acted upon under the same circumstances. Fr. Gauhe has proved, by a series of experiments, that the corresponding compound of diamido-benzol results. Ann. Ch. und Ph. 147, 66.

Nitroxyphenyl-sulphuric acid and *dichloroxyphenyl-sulphuric acid* have been prepared by H. Kolbe and Fr. Gauhe by direct introduction of nitrogen-tetroxid and chlorine into oxyphenyl-sulphuric acid. The authors established the constitution of both acids and of some of their salts. Ann. Ch. und Ph. 147, 71.

Therapeutics of Phenol. The applications of the so-called carbolic acid in medicine and surgery are increasing; there are several notes in medical, pharmaceutical and chemical journals which report in favor of phenol in various diseases. Interesting among them are Dr. Jos. Hirsch's experiments on the action of phenol on animal albumen, (Ch. N. A. R., April 1869, 192,) and the recommendation of phenol as a cure for snake bites, by Dr. W. Hood, of Melbourne, Australia.

Antidote to phenol. Cr. Calvert states, in the Med. Times and Gaz., that the best antidote after the stomach-pump is large doses of olive or almond oil, with a little castor oil. Oil is a solvent, and consequently a diluent of phenol, and may be used to check the corrosive effect of the poison.

Cholesterin was previously believed to be a product solely of the animal organism. Beneke, however, established in 1862 its

formation and presence in the cotyledons of peas and beans, (Ann. Ch. Ph. 122, 249,) and soon afterwards Ritthausen found it in wheat, and more recently in rye. K. Lintner found it also in barley. Ritthausen ascertained, at the same time, that the fat of rye is palmitin, and not stearin as heretofore believed. J. f. pract. Ch., 1867, 324. N. Jahrb. f. Ph. xvii, 281.

TRIATOMIC ALCOHOLS AND ETHERS.

Methenyl Chloride. Chloroform. The extensive literature of chloroform has been enriched during the last year by continued researches and studies. Foremost among them are the labors of Schacht (Arch. d. Ph. 182, 213 and 183, 192 and 186, 50,) of Hager (Centralhalle, ix, 75, 81, 155 and 239,) of Biltz (Arch. d. Ph. 184, 203,) of J. M. Maisch (A. J. Ph. 1868, 289,) of Rump (N. Rep. Ph. 1868, 545, A. J. Ph. Jan. 1869, 19,) of H. Trommsdorff (N. Jahrb. Ph. 30, 148,) of Personne (Bull. de l'acad. de Med. 30, 747,) of Wollert (Upsala Läk. fören. Foerhandl. III, 285,) of Almen (ibid. iii, 291,) and of Bresgen (Arch. d. Ph. 186, 221.)

A brief survey of these labors, although perhaps desirable, would greatly extend the limits of this report. Consequently reference is made to the principal contributions on the subject, and the following summary of their main points:—

Preparation of Chloroform. It is best prepared and purified according to the well known methods of Hirsch and Maisch.

Constitution. Chloroform is the triatomic methenyl ether— CHCl_3 —its density when pure is at 15°C . 1.50, its boiling point $+62^\circ\text{C}$. Any higher or lower specific gravity or boiling point are evidence of foreign substances, mostly alcohol. Pure methenylchloride is a stable compound, not decomposing when excluded from the action of oxygen and light, but readily decomposed by light in the presence of oxygen. This oxidation is as yet not satisfactorily accounted for; it is only established that the products of this decomposition are: free chlorine, hydrochloric acid and probably carbon-oxychloride (COCl_2), three objectionable substances for inhalation. It remains to be decided if ethyl-chloride, carbon-chlorides and chloral are also products of this decomposition of chloroform.

Absolutely pure chloroform therefore can be kept in tubes, void of atmosphere and sealed, but it cannot be kept under common circumstances.

To all appearance, as the studies of Maisch, Rump, Biltz and others evidently show, an addition of one or two per cent. of ethyl-alcohol (and perhaps other alcohols and ethers) prevent this oxidation of chloroform by the atmospheric oxygen under the action of light and warmth for a considerable time.

The long and fierce controversy on the pretended stability or the proved decomposition of chloroform has finally been successfully elucidated and referred to the purity of the chloroform upon which the respective inquirers operated.

Wiggers proposes, for chloroform of the spec. gravity of 1.48 to 1.496, which contains one to two p. c. of alcohol, the name chloroformium officinale, and suggests its keeping in our store-rooms under a layer of distilled water, taking it out, when required, by means of a syphon or a pipette.

Maisch suggests for the officinal chloroform a density of 1.4750 to 1.480, corresponding to an admixture of about two per cent. of alcohol.

Each chloroform when bought ought to be examined on its specific gravity, its boiling point and its neutrality; its odor has to be pure and not in the least suffocating. Of all the methods to establish partial decomposition, the well known test of Biltz is perhaps the most reliable one. It depends upon the detection of chlorine by perfectly neutral potassium iodide. The test is best executed by adding in a test tube, to a little of a solution of 1 part potassium iodide in 20 parts water, drop by drop, about two equal volumes of the chloroform. When shaken a chloroform containing but traces of free chlorine turns rose colored, and the watery solution at the same time yellow; after this, each drop chloroform falling through the watery solution accepts a purple coloration.

Biltz has satisfied himself that neither ozone nor carbon-oxy-chloride cause this reaction.

A chloroform which has partly undergone decomposition can, according to Schacht (Arch. d. Ph. 186, 50), be fully restored

to its original purity by agitating with potassium hydrate and rectifying.

Testing Chloroform for Alcohol and Ether. Since all or, as may be hoped for, nearly all commercial chloroform contains a slight percentage of alcohol, the well known test for this admixture by means of potassium bichromate is obviously a *contradictio in abstracto*, but in case it is required to establish the complete absence of alcohol in methenyl chloride, this test is the most delicate. The specific gravity is more or less a good standard for commercial chloroform. For a more close investigation M. Braun suggests the following test: The sample is first treated with fused calcium chloride, in order to eliminate any water; next some iodine is added. If the chloroform is free from either alcohol or ether the color produced by the solution of the iodine is bright red; but when either alcohol or ether are present the color of the solution is brown. In order to distinguish between alcohol and ether a small crystal of fuchsin is dropped upon the surface of the sample; when the slightest trace of alcohol is present a deep red solution will ensue, whilst perfectly pure chloroform yields, with fuchsin, a solution which has only a slightly pinkish tinge. Zeitsch. f. Anal. Chem. v, 253.

Chloroform in the Urine. The London Ph. J. contains the following, and may take the responsibility for this note from the Journal de Pharm. d'Anvers: The urine of patients who have inhaled chloroform gives, with Trommer's test, a copious indication of the presence of sugar. This reaction, however, is not due to sugar, but to chloroform. Traces of chloroform in the urine cause a reduction of the cupric oxide in the same manner as glucose. The presence of chloroform in urine may be detected by causing a current of air to bubble through the urine, then through a red-hot porcelain tube, and finally, through a Liebig's bulb containing a solution of argentic nitrate. The vapor of the chloroform diffused in the stream of air is decomposed in the heated tube, and the resulting chlorine precipitates the silver solution. London Ph. J., Febr., 1869, 486.

Propenyl Alcohol. Glycerin ($C_3H_5O_3$). A. Vogel and Fuchs, supposing that pure glycerin does not unite with water, but only

mixes with it, and that, therefore, when they are being mixed, neither expansion nor condensation occurs, have calculated for the specific gravity of glycerin a formula, to ascertain from the density of each sample of glycerin the quantity of water contained therein. Ph. Centr. Halle, ix, 177.

Schweikert has corrected this table by a more minute determination of the specific gravity of glycerin, this being 1.26672. His formula for the calculation of water in glycerin by means of its density is the following :

$$x = \frac{100b(a-c)}{c(a-b)} \text{ or } x = \frac{100(a-c)}{ac-c.}$$

Accordingly Schweikert calculated the following table :

Percentage of water in Glycerin at the respective spec. gravity.

Spec. gr.	Water.	Spec. gr.	Water.	Spec. gr.	Water.	Spec. gr.	Water.
1.267	0	1.224	13	1.185	26	1.147	39
1.264	1	1.221	14	1.182	27	1.145	40
1.260	2	1.218	15	1.179	28	1.142	41
1.257	3	1.215	16	1.176	29	1.139	42
1.254	4	1.212	17	1.173	30	1.136	43
1.250	5	1.209	18	1.170	31	1.134	44
1.247	6	1.206	19	1.167	32	1.131	45
1.244	7	1.203	20	1.164	33	1.128	46
1.240	8	1.200	21	1.161	34	1.126	47
1.237	9	1.197	22	1.159	35	1.123	48
1.234	10	1.194	23	1.156	36	1.120	49
1.231	11	1.191	24	1.153	37	1.118	50
1.228	12	1.188	25	1.150	38		

Ph. Centr. H. ix, 407.

Glycerine as a solvent. J. W. Klever publishes the following statements: 100 parts of glycerin (spec. gr. not stated) dissolve: arsenious acid, 20 p.; benzoic acid, 20 p.; oxalic acid, 15 p.; bicyanide of mercury, 27 p.; corrosive sublimate, 7.50 p.; alum, 40 p.; arseniate of potassa, 50 p.; strychnia, 0.25 p.; morphia, 0.45 p.; acetate of morphia, 20 p. The following substances are insoluble in glycerine: ether, benzol, camphor,

bisulphide of carbon, chloroform, bromide and iodide of mercury, calomel, fatty acids, fatty and volatile oils. Glycerine is decomposed by chromic acid, potassium bichromate and potassium permanganate. Ph. Zeitsch. f. Russl. March, 1869. Ch. N. A. R. Aug., 1869, 96.

Werner avers to have succeeded with the following experiment for the crystallization of glycerine: he was not able to "crystallize glycerine either by agitation or cold," but having recognized the presence of chlorine in some solidified glycerine, he made the experiment of passing a few bubbles of chlorine through commercial glycerine, and obtained small octahedral crystals, possessing great hardness, but deprived of the sweet taste of glycerine, even when melted." Zeitsch. f. Ch. June 17, 1868. Ch. N. A. R. March, 1869, 142. A. J. Ph. January, 1869, 17.

Impurities and admixtures, and their detection. It is well known that commercial glycerine sometimes has an irritating effect; it was supposed that oxalic or formic acids were the cause. A. Duflos, however, states that this is not the case; he distilled perfectly pure glycerine in vacuo, whereby it got the irritating qualities. For this reason, and because such glycerine with argentic sulphate and ammonia liquor on heating reduces the silver, and because it loses its irritating effect simply by solving it in water and subsequent evaporation, Duflos concludes that acrolein is the cause of this objectionable property of some kinds of crude commercial glycerine. Acrolein as an aldehyde is known to be produced by dehydration of glycerine. Duflos, Chem. Apoth. b. p. 864.

Schepky found in commercial glycerine among other impurities also traces of nitric acid, recognizable by the test with ferrous sulphate and strong sulphuric acid. (Arch. Ph. 185, 16.) Perutz states, in Polyt. Centralbl., 1868, 638, that crude glycerine contains as much as one-fourth to half per cent. butyric acid, readily recognizable by agitating a sample of the glycerine in a test tube with some alcohol and strong sulphuric acid; if butyric acid is present, the pine-apple-like flavor of ethyl butyrate is noticed.

Ammonium molybdate has been added by A. Vogel to the

several reagents for testing glycerine for sugar, glucose, dextrin and gum. When glycerine, previously diluted with from twenty to twenty-five times its bulk of water, is mixed with a few drops of a solution of ammonium molybdate and nitric acid, the mixture, when heated, becomes colored blue when the glycerine contains any sugar; when dextrin is present the reaction is not so marked, and the color rather more greenish. The adulteration by dextrin or by glucose, however, is infallibly detected by Trommer's copper test, as applied to the detection of grape sugar; as for gum, the ammonium molybdate is a good test. N. Rep. Ph. xviii, 24.

Nitro-glycerine. F. Tilberg made a series of experiments with nitro-glycerine; he found among the products of decomposition, when acted upon by potassium hydrate, potassium nitrate, glycerine, ammonia, cyanogen, oxalic, nitrous and humic acids.

Nitro-glycerine dissolves in concentrated sulphuric acid, forming with it a new compound acid, which yields crystalline salts. A combustion gave three vols. of carbonic anhydride to one vol. of nitrogen. If nitro-glycerine is regarded as substituted glycerine, and the relation between it and the new acid is the same as that between glycerine-sulphuric acid and glycerine, the new compound will be dinitro-glycerine-sulphuric acid. Oefvers. af Stockholm Ak. Foerh., 1868; 25, No. 2, 75.

For the detection of nitro-glycerine in cases of poisoning, A. Werber suggests the following process: the organic material to be tested is extracted with ether or chloroform, the extraction mixed on a watch glass, with two or three drops of pure aniline, and evaporated upon the water-bath. A few drops of concentrated sulphuric acid are then added, when, if nitro-glycerine is present, a purple coloration appears, which changes to a dark green on dilution with water. As little as .001 grain of nitro-glycerine may thus be identified. Zeitsch. f. Anal. Chem. vii, 158.

Frangulin is obtained, according to Casselmann, by extraction of the bark of *Rhamnus frangula*, L., with ammoniated water. The decoction is precipitated by hydrochloric acid, and the precipitate is boiled with alcohol. The alcoholic solution is precipitated with basic plumbic acetate, the precipitate decom-

posed by sulphhydric acid, and the frangulin is extracted by boiling alcohol. The alcohol is distilled off, and from the remaining liquid the frangulin is precipitated by water. By repetition of this operation the frangulin is obtained pure. It forms a yellow crystallizable substance, insoluble in water, slightly soluble in alcohol and ether, but more freely when warm; it is further soluble in some oils, in benzol and in oil of turpentine. Alkalies dissolve it with red color. Acids split it into glucose and frangulic acid, forming yellow crystals, readily soluble in alcohol and ether. Faust prepared and studied, besides this acid, the dibrom-frangulic acid and difrangulic acid. Zeitsch. f. Chem. xii Jahrg. vol. v, and Ph. Zeitsch. f. Russl., April, 1869.

HEXATOMIC ALCOHOLS AND ETHERS.

Cane-sugar or Saccharose. All new researches and contributions to the manufacture and refinement of sugar are compiled and criticised in Chem. Centralblatt. N. F. xiii, 993—1007.

It is a well-known fact, established by former researches of Soubeiran, Berthelot, Maumené and Béchamp, that the transformation of saccharose into glucose occurs not only by the influence of acids, but also, though slower, in a simple watery solution; it is accelerated by certain salts, whilst others retard or check the transformation. Clasen (Journ. f. pract. Chem. 53, 449,) has instituted a series of experiments on this subject, and states that a watery solution of saccharose passes but very slowly into glucose without the aid of fungi. Some salts as, for example, calcium sulphate, ammonium chloride, potassium nitrate, etc., prevent this change at common temperature; but if such a sugar solution containing calcium sulphate, potassium nitrate and ammonium chloride, after some days is heated to $+87^{\circ}\text{C}$., the transformation into glucose goes rapidly on, especially when gypsum and sal ammoniac are present. This experiment can only be conducted for some days, since with the formation of fungi a new source for the continued transformation rises. The quantity of glucose produced under these circumstances is comparatively but slight, and can only be proved by Fehling's alkaline copper-test.

Beet Sugar and Cane-Sugar. It is well known that refined beet sugar is not to be readily distinguished from cane sugar, especially when in large crystals. But their solutions show some slight differences. The solution of beet sugar, for example, colored by some indigo-carmin solution, cannot sufficiently be concentrated to solidify after cooling, without changing the blue color into green or completely discoloring it, whilst this is not the case with cane sugar. This may be caused either by traces of nitrates or of glucose, which is still to be decided. A. Vogel suggests the spec. gravity as a means of distinguishing both kinds of sugar, since the density of cane sugar to glucose is as 20:19. This spec. gravity is best to be ascertained by volumetric measurement of absolute alcohol displaced by weighed bulks of sugar. N. Rep. Ph. 18, 154.

Glucose. The transformation of starch into glucose in the manufacture of so-called starch sugar (glucose) by the action of sulphuric acid, goes on slower and slower, the nearer the process comes to its termination. Manufacturers therefore frequently do not furnish it completely transformed, and for this reason commercial grape-sugar contains more or less dextrin. A. Maubré ascertained that the complete transformation of starch and of dextrin into glucose is considerably promoted and accelerated, when the operation is conducted under a higher pressure than the common atmospheric one, so that the boiling point is considerably raised. Maubré's process and modus operandi are described in Chem. Centralbl. 1868, p. 148.

Starch. Jessen has continued his researches on starch, and has published the results of his recent investigations. The author denies that starch, as is believed by some chemists and physiologists, can be considered to be a vegetable proximate principle, since it is composed, besides the various admixtures as, for example, wax, vegetable fat, chlorophyl, dextrin, etc., of three distinct organic substances:—cellulose, amylogen (amidin) and amylin. The percentage of the cellulose is but a slight one, and the latter two are its principle constituents, and those to which its characteristic properties are due. J. f. Pract. Ch. 105, 65.

Notwithstanding the numerous elaborate researches and studies

on starch, our knowledge about its chemical constitution and its origin is still wanting; as yet no conclusive elementary analysis of either of these constituents have been arrived at, since their complete separation and preparation are a matter of considerable difficulty.

Method for *determining the percentage of water contained in starch*. C. Scheibler publishes, in *Berichte d. Deutsch. Chem. Ges.* in Berlin, 1869, No. 8, in a lengthy paper, the result of elaborate experiments for the determination of the quantity of water contained in starch, which paper is of special value to starch and glucose manufacturers.

Since starch is insoluble in alcohol and only contains very slight traces of fatty matter, Scheibler supposed that the object to be obtained might readily be attained by determining the change which the specific gravity alcohol suffers after having been for some time in contact with wet starch. After a number of experiments the author devised the following mode of the test:—100 c. c. of the alcohol, weighing 88.4 grms., was placed in a glass-stoppered bottle, and thereto were added 41.7 grms. of divers samples of starch, in separate samples, of which the quantity of water therein contained had been previously ascertained with great accuracy. They were left with the alcohol in contact for one hour, frequently shaking the bottle. Then the alcohol was separated from the starch by filtration, and its specific gravity determined.

While experimenting, C. Scheibler observed that, when the starch contains less than 11.4 per cent. of water, instead of yielding up water to alcohol of the above-named strength, it withdrew water from that alcohol.

M. Guichard proved, by a number of experiments by means of the dialyser, that the so-called *iodide of starch* is simply starch tinted by iodine, and that heat alone is sufficient to separate both. *Ch. N. A. R.* Sept. 1868.

Gum.—*Qualitative and quantitative determination of gum arabic in solutions containing sugar and dextrin*. Z. Rossin devised a method for this purpose, based upon the precipitation of gum by ferric salts. Since, however, this precipitate, on

account of its tenacity, could not be obtained free of foreign substances without loss, the author has suggested the following modification of his method : The solution to be examined is evaporated nearly to dryness and then precipitated by the addition of its tenfold bulk of alcohol of 90°. The precipitate is washed with alcohol and dried. One gramme of it is then dissolved in 10 cub. centim. distilled water; this solution is transferred into a bottle large enough to hold 60 cub. cent., then 30 c.c. alcohol of 56° and four drops of a solution of ferric chloride (containing 26 per cent. anhydrous ferric chloride) are added, and finally a few decigrammes of precipitated chalk. After frequently agitating, the liquid is transferred upon a filter. When the filtrate, if mixed with eight to ten times its volume of strongest alcohol remains clear, the solution contained, besides the gum, no dextrin.

It is obvious that this test is readily applicable for the quantitative determination of gum as well as of dextrin. Ph. Centr. Halle, x, 141.

Acorin. A Faust succeeded in preparing from calamus rhizomes a new glucoside. Five pounds of the dry rhizomes yielded one drachm acorin, a soft resinous mass of the strong taste and flavor of the rhizome. It dissolves readily in alcohol and ether, contains nitrogen and, like all glucosides, splits under the action of acids and heat into glucose and a resinous body not yet examined. Viert. Schrft. f. Ph., xviii, 136.

Digitalin. Nativelle's labors on digitalin and its preparation, published in 1867, (Monit. Scient. 1867 & N. Jahrb. f. Ph., xxvii, 161) have since been confirmed by more recent communications on the subject, and his mode of preparing digitalin has been adopted in the new French Codex. Only slight modifications have been suggested by J. Lefort, (Journ. de Ph. & de Chem., vi, 424) but which were already proposed in 1844 by Homolle and Quevenne.

Recently M. Nativelle has recognized a crystallizable substance, which accompanies the digitalin, and which he succeeded to separate. The author reports his method at length in Journ. de Ph. & de Chim., 1869.

Since the existence of two modifications of digitalin—amor-

phous and crystallizable—are known, it remains to establish by further researches the constitution and the relations of digitalin.

ORGANIC ACIDS.

MONATOMIC ACIDS.

Acetic Acid. A plan of testing the strength of acetic acid, likely to be of great use, has been published in the "Photographic Journal." It was observed independently by M. Berthelot and Mr. E. C. Nicholson, that an acid which, although of a high degree of purity, is not glacial, becomes inflammable when the temperature is raised to the boiling point. When boiled in a test tube the vapor of an acid of 95 per cent. will be found to take fire on applying a lighted match, and burns steadily as long as the ebullition is maintained; if, however, 10 per cent of water be mixed with the sample, there will be great difficulty in causing inflammation, and the vapor, when ignited, will only burn with a lambent flame of pale blue cones, whilst below this strength the acid vapor is altogether inflammable.

In some respects the deportment of carbolic acid resembles acetic acid in the characters above described; it likewise becomes glacial upon separation of the last traces of water.

Oxidation of Acetic Acid into Oxalic Acid. F. Lossen states that when one part of sodium acetate, one part of sodium hydrate and two parts of potassium permanganate are dissolved in a little water, the solution concentrated by boiling, and next brought to dryness at a temperature at which oxalic acid is not decomposed, and this heating continued until a small portion ceases to yield, with water, a green-colored solution, oxalic acid can be readily proved to exist in the remaining saline mass. Ann. Ch. & Ph., 148, 174.

Dichloroacetic Acid. A. Dumas, as well known, several years ago made the interesting observation that, by the action of chlorine on acetic acid, one equivalent hydrogen after the other can be substituted by the corresponding number of chlorine equivalents and that the products remain strong acids.

These acids, particularly their dichlorated substitute, have recently become, besides their scientific value, of practical interest,

since Dr. Urner (Schweiz. Wochensch. f. Ph., 1869, 321 and 327) has called attention to the powerful caustic virtues of the dichloroacetic acid, which he thinks superior to the usual cauteries, since it produces less pain, acts more locally and allows a quicker healing. Processes for its preparation have been given by Dumas, Hoffmann and Maumené, and it has been obtained on a large scale and brought into commerce by Cl. Marquard, in Bonn. Since, however, these methods are expensive and yield only comparatively small quantities, and since the acid, to all appearance, will become one of the best cauteries, the Pharmaceutical Assoc. of Switzerland has, for these reasons, offered two premiums for the two best essays on dichloroacetic acid and the best and cheapest method of its preparation. N. Rep. Ph., xvii, 513.

BENZOIC ACID.

Preparation of benzoic acid by Rump's apparatus, vid. p. 138.

Conversion of Benzoic into Anthranilic Acid. The action of bromine upon benzoic acid gives rise to the formation of monobrom-benzoic acid. This acid, according to H. Hübner and A. Petermann, may be successively converted into bromamido-benzoic acid and amido-benzoic acid, which is identical with anthranilic acid, by shaking the bromamido-acid with sodium amalgam. The acid crystallizes in long needles; its identity with anthranilic acid is proved by the fact that, when treated with nitrous acid, it produces a purple coloration with ferric chloride, a reaction which distinguishes salicylic acid from oxybenzoic and para-oxybenzoic acids. Zeitsch. f. Ch. N. F., iv, 205.

CINNAMIC ACID.

The Derivatives of Cinnamic Acid have been the subject of C. Glaser's continued investigations (A. Ch. & Ph., 143, 325). The author has transmuted cinnamic acid (phenyl-acrylic acid) by addition of hypochlorous and hypobromous acids into a series of homologous acids. Ann. Ch. & Ph., 147, 78.

VALERIANIC ACID.

The formation of Acetic and Formic Acids in the preparation of Valerianic Acid by the action of potassium bichromate and sul-

phuric acid on fusel oil has been observed previously, but the quantity of either has, as yet, not been ascertained. J. Sticht, operating on large quantities of fusel oil, obtained from 400 pounds of oil a little more than 200 pounds of valerianic acid, and about 12½ pounds acetic acid. Viertelj. Sch. f. Ph., xvii, 486.

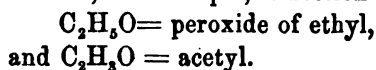
Since the therapeutical value of valerianic acid was based upon the acid derived from the root of *Valeriana offic.*, L., it was doubted that the artificial acid prepared from fusel oil, and containing more or less acetic and formic acids, was of equal medicinal value with the natural acid.

In order to elucidate this question, Stalmann instituted a series of comparative researches with both acids; the author found that both, when pure, in their elementary constitution as well as in most of their properties are alike; the only slight differences he found are their different boiling points, which is for the natural acid at 175° C., and for the artificial at 174·6° C., and the difference in their barium salt, already observed by Dumas in 1840; the barium valerianate of the natural acid crystallizes with two water atoms in large crystals, whilst the crystallization of the same salt with the artificial acid has not yet been effected.

Stalmann, therefore, thinks both acids to be isomeric modifications, and the question of the therapeutical equivalence of the artificial acid a still open one. Ann. Ch. & Ph., 147, 129.

Fred. Mussgiller, in Proc. Am. Ph. Ass., 1868, 396, reports on his researches on the mode of preparing valerianic acid and on its specific gravity; the author adds a table of the densities of the successive quantities obtained at the distillation of the acid, and their respective boiling points, and suggests 0·935 as perhaps the proper and sufficient strength of the officinal acid.

Action of Sodium on the Ethers of the Fatty Acids. Prof. Wanklyn reported to the London Chem. Soc., as the final result of his researches, continued through five years, that the ethers are resolved into two parts by the action of sodium, viz.: into peroxide of the alcohol-forming radical and into acid-forming radical. Acetic ether, for example, is broken up into:



The peroxide of the alcohol-forming radical is always found in the state of combination with sodium. The acid-forming radical is sometimes found isolated and sometimes in combination with sodium. Ch. N. A. R., Febr., 1869, 88.

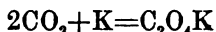
DIATOMIC AND MONOBASIC ACIDS.

Lactic Acid. Lime water has been recommended as an effectual remedy to remove the pseudo-membrane in croup. More recently lactic acid is said to answer still better; the diseased parts are repeatedly touched with a watery solution containing 10 per cent. lactic acid. Ph. Centr. Halle, xi. No. 50.

DIATOMIC AND BIBASIC ACIDS.

Oxalic Acid. Fr. Stolba recommends and describes, in Zeitsch. f. anal. Ch. viii, 63, the mode of sublimation as the best method to obtain pure oxalic acid for analytical purposes.

Drechsel succeeded in the production of oxalic acid by direct combination of potassium with carbonic dioxide :—



The potassium salt is obtained by passing carbon dioxide over a heated potassium amalgam; the sodium salt by passing the gas over a heated mixture of sodium and sand. Ann. Ch. & Ph. 146, 140.

Succinic Acid is, as well known, produced by the oxidation of many of the fatty acids and their glycerides. Recently Berthelot (Ann. Ch. & Ph. Suppl. vi, 184), has produced it by the action of potassium permanganate upon butyric acid; Weissner and Shepard (Journ. de Ch. Méd. 5 Ser. iv, 177) from benzoic acid by means of plumbic dioxide and sulphuric acid, and A. Eller and H. Wichelhaus (Ber. d. Deutsch. chem. Ges. 1868, 98) from chlor-propionic acid by the action of potassic cyanide.

TETRATOMIC AND MONOBASIC ACIDS.

Tannic Acid. Wagner divides the tannic acids into two groups :—

1. Pathological tannic acid has its origin in pathological conditions of vegetable life, mostly of quercus and rhus species. When their young branches are pierced by insects of the genus *Cynips*, they are affected at the points of puncture with a morbid

action, resulting in excrescences rich in tannic acid. The occurrence of this modification of tannic acid in the oak bark, rhus and in other plants is denied by the author. Its principal characteristic properties are:—1, by fermentation as well as by the action of acids it splits into gallic acid and glucose, which, however, is immediately decomposed further into alcohol, into carbonic, lactic, propionic, and butyric acids and numerous substances. 2, It is the only tannic acid which yields pyro-gallic acid. 3, It precipitates solutions of glue, but does not transform corium into leather.

2. Physiological tannic acid includes all those tannic acids occurring in the bark of the oak genus, in pines, willows, etc. This acid does not split by the action of acids; when heated it does not form pyrogallic acid but pyrocatechic acid; it tans corium completely.

This division appears to be admissible in general, but as regards the distribution of the tannic acid in the vegetable kingdom, its ideas are contradicted by observations and researches, for example by H. Hlasiwetz (Ann. Ch. & Ph. 143, 292, and ibid. 142, 233), and others. Jour. f. pakt. Ch. N. F. iv, 595.

Tannic Acid from Chinese Galls. According to E. Schmidt, Chinese galls yield in the average 65 per cent. pure white tannic acid by the following process:—1000 parts of the powdered galls are macerated for two or three days with a mixture of 1000 parts ether and 250 parts alcohol, and then expressed. The residue is treated once more in the same manner with 600 to 700 parts of the same ethereal mixture. The combined liquids are then distilled from a retort, in which they were mixed with 150 to 200 parts of water, and all ether and alcohol drawn over. The residual watery solution is evaporated to dryness, after which the residue is again dissolved in one-half its weight of water. Too great a dilution of the fluid is to be avoided, since it will favor a resolution of chlorophyll and resin. It is milky, and is heated, with replacement of the water which evaporates, for one or two hours in the steam bath at a temperature of about 140° F; then set aside for complete cooling, when it will yield a pure tannin. Arch. d. Ph. 184, 213.

Tannic Acid in Vegetables. H. K. Bowman has ascertained, by Müller's volumetric method, the amount of tannic acid contained in a number of vegetable astringents, and gives the result in a table in Am. J. Ph. May, 1869, 193.

(The author has in several cases omitted to state the part or parts of the respective drugs employed.)

Transformation of Tannic into Gallic Acid. It has long been known that tannic acid under the action of various substances and the air assimilates water equivalents and splits into gallic acid. Van Tighem, in an essay in the Zeitsch. f. Chem. N. F. iv, 222, attributes the cause of this transformation to the action of fungi, especially *Penicillium glaucum* and *Aspergillus*.

Phlobaphen. Grabowsky, in a paper in the Jour. f. prakt. Ch. 1868, No. 23 & 24, describes an amorphous kind of tannic acid precipitated by plumbic acetate, as the principal constituent of the oak bark. When this phlobaphen, as he terms it, is boiled with dilute sulphuric acid, it splits into glucose and oak-red (eichenroth); when purified its elementary composition is $C_{26}H_{24}O_{14}$.

Volumetric determination of Tannic Acid. J. Watts, in the London Ph. Journ. October, 1868, 223, corroborates Fleck's volumetric method of estimating tannic acid by means of cupric acetate. This mode is not fully correct, since the whole of the coloring matter is precipitated at the same time with the tannic acid. Watts found that 1 gramme of commercial tannic acid, dried at $100^{\circ}C$., combines with .3911 grammes of metallic copper = .489 grammes of oxide. Watts made a number of experiments, in order to ascertain whether the cupric tannate precipitated from solutions of the various tanning materials possess in all cases the same composition as that obtained from nut galls. Although they show a slight variation, all tannic acids yielding a blue precipitate with ferric oxide salts, insoluble in either ammonia or its carbonates, may be brought into calculation as tannic acid. But not all tannic acids giving a blue precipitate with ferric oxide, can be determined by Fleck's method, because the precipitated tannate is more or less soluble in ammonium carbonate solution. Watts calls this modification mimotannic acid or mimosatannin.

Tormentil, rhatany, larch bark, willow bark, hemlock bark, catechu, kino, etc., were found to contain this mimosatannin. Referring to the recent labors of Stenhouse, Kawalier and Knop on the constitution of tannic acid, whether it be a glucoside or not, Watts thinks the arguments increasing for separating the varieties of tannic acid into two genera, and hopes for a speedy artificial production of tannic acid by synthetical means, which would yield it free from organic admixtures, and afford the opportunity to estimate its combining number for analytical purposes, and also set at rest all doubts about its constitution. London Ph. Journ. Oct. 6, 1868, 223.

Ellagic Acid. In commercial tannic acid is always gallic acid, and consequently ellagic acid which proceeds from it. A cold extract of oak bark gives by degrees a yellow deposit of ellagic acid, and it is this which constitutes that gelatinous covering which is formed over tanned hides. J. Löwe, in Journ. f. pract. Chem. 103, 469.

According to J. Löwe, ellagic acid is formed when an aqueous solution of two equivalents of gallic acid and one of arsenic acid is kept near the boiling point for several hours. J. f. prak. Ch. 103, 469.

TETRATOMIC AND BIBASIC ACIDS.

TARTARIC ACID.

M. Juette gives, in the Comptes Rendus 66, 417, a method of *estimating tartaric and malic acids* by means of iron, aluminium, manganese, etc., and *vice versa*. Ch. N. A. R. Oct., 1868, 179.

Quantitative estimation of Tartaric Acid. Martenson, after ascertaining the almost complete insolubility of calcium tartrate in alcohol of eighty-five per cent. strength, suggests the following method for estimating the amount of tartaric acid in potassic bitartrate and its other salts: They are, when perfectly dry, dissolved in a small quantity of water, then pure calcium chloride solution is added, with the precaution to avoid excess thereof; afterwards a few drops of lime-water are added, and the porcelain capsule is left standing for some hours. The crystalline precipitate is then collected, washed with alcohol, dried and weighed as— 2CaO , $\text{C}_8\text{H}_4\text{O}_{10} + 8\text{HO}$.

When either hydrochloric or nitric acid is present along with tartaric acid, the fluid is first nearly neutralized with calcium carbonate and warmed to expel the carbonic acid gas, while the last traces of the acid are removed with lime-water. The presence of either ammonium chloride or calcium chloride in excess interferes with the correctness of the result, and makes it necessary to add alcohol to the liquid to be operated upon. Ph. Zeitsch. f. Russl. 1869, No. 1.

TETRATOMIC AND TRIBASIC ACIDS.

CITRIC ACID.

To examine *Citric Acid* for an admixture of *Tartaric Acid*. Blacher suggests the following test: Half a drachm of the specimen and fifteen grains magnesium bicarbonate are warmed in six drachms water. When a precipitate of magnesium tartrate is formed, the presence of a considerable percentage of tartaric acid is proved; if the solution remains clear the flask is dipped in cold water, and when cold, two ounces of strong alcohol are added, and the whole shaken. When, after a while, the liquid remains clear, the sample is free of any tartaric acid, for the slightest quantity of this acid will cause the solution to become turbid. Journ. de Pharm. d'Anvers, xxiii. 443.

Isocitric Acid is formed, according to Rochleder, when citric acid in aqueous solution is treated with sodium amalgam, care being taken to keep up an acid reaction of the liquid by the addition of dilute sulphuric acid. The isocitric acid may be obtained pure by a rather circuitous process, and then exhibits a crystalline mass, which has not yet been further investigated. Journ. f. prakt. Ch. 1869, No. 5.

Chloral Hydrate. Chloral, the aldehyde of trichlorinated acetic acid has been known for more than a quarter century. Recently, Dr. O. Liebreich, of Berlin, has established that the hydrate of chloral ($C_2HCl_3O_2 + H_2O$) is to all appearance the most satisfactory anæsthetic and hypnotic, and is therefore a substitute for both chloroform and morphine. It is administered internally, as well as by subcutaneous injection. The principal product of its decomposition is chloroform. The pure chloral hydrate forms a white crystalline mass readily soluble in water and alcohol. Vid. Literature.

ALDEHYDES.

ALDEHYDES DERIVED FROM MONATOMIC ALCOHOLS.

CAMPHOR.

The substance known in perfumery and pharmacy as *patchouli camphor* is, according to recent researches of Gal, homologous with Borneo camphor, and is represented by $C_{30}H_{28}O_2$. Patchouli camphor is solid, fuses between 54° and 55° C, and boils at 296° C. It is insoluble in water, readily soluble in alcohol and ether, and crystallizes in hexagonal prisms. The essence of patchouli is isomeric with the camphor, which is, it appears, simply formed by a molecular change. Bulletin mens. de la Soc. Chim. de Paris, No. 4, 1869.

ALDEHYDES DERIVED FROM DIATOMIC ALCOHOLS.

Aldehydine. If aldehyde-ammonia, urea and ammonium acetate are heated together to 120 – 130° C., an oil of the composition $NC_{18}H_{11}$ = aldehydine is obtained. It floats upon water, in which it is slightly soluble; its boiling point is 175° C. It smells like *coniine*, from which it differs in composition by a minus of $4H$; it cannot, however, be converted into the latter by the action of sodium amalgam. Ber. d. Deutsch. Ch. Ges. 145, 1868.

The constitution of coumarin, coumaric and melilotic acids have been the subject of researches by Mr. Perkins, and more recently by Rud. Fittig. The former succeeded in obtaining aceto-salicylol (hydride of aceto-salicyl) isomeric and identical with coumarin. By decomposition and by analogy with similar aldehydes, Fittig presumes that the aceto-salicylol is the anhydride of coumaric acid. The decomposition of coumaric acid into salicylic and acetic acids speaks greatly in favor of the view that the constitution is similar to that of cinnamic acid, and that it stands to this in the same relation as salicylic acid to benzoic acid.

By treatment with hydrogen in statu nascenti, coumaric acid is converted into melilotic acid, the same as cinnamic acid is converted into phenyl-propionic acid. Journ. of the Chem. Soc. 2 ser. vi. 53 & 181.

CYANOGEN COMPOUNDS.

HYDROGEN CYANIDE—HYDROCYANIC ACID.

Formation of Hydrocyanic Acid. M. Berthelot states that all hydrocarbon compounds produce acetylene under the influence of electrical sparks, that it appears that nitrogen, mixed with whatsoever hydrocarbon vapor, forms hydrocyanic acid, and that this acid may be formed by direct synthesis by the union of carbide of hydrogen and nitrogen under the influence of electric sparks. Ch. N. A. R. May, 1869, 250.

Prof. Wurtz, in a report on some researches, mentions the observation of Gautier, that *hydrocyanic acid* acts as a basis by uniting with hydrochloric acid to a compound analogous to chlor-ammonium. N. Rep. Ph. 18, 170.

Hydrates of Hydrocyanic Acid. M. Gautier made a few observations on the question of existence of well defined hydrates of hydrocyanic acid. The experiments of Bussy and Buignet, on the contraction of mixtures of water and hydrocyanic acid, led to a maximum contraction, corresponding to a mixture expressed by the formula $2\text{CHN} + 3\text{H}_2\text{O}$. Supposing that there exist hydrates with constant fusing point, the author made experiments with several mixtures made up of variable quantities of hydrocyanic acid and water in definite proportions; not one of these mixtures had a constant melting point. The author concludes that two definite hydrates may be said to exist expressed by the formulæ $\text{CNH}, \text{H}_2\text{O}$ and $\text{CNH}, 2\text{H}_2\text{O}$; these, by combining together, produce the hydrate $2\text{CNH}, 3\text{H}_2\text{O}$. Bull. mens. d. l. Soc. chim. d. Paris, May, 1869.

Detection of Hydrocyanic Acid. Schoenbein has given a novel and very delicate reagent for the detection of hydrocyanic acid in the state of vapor, which is especially valuable in forensic cases. It consists of strips of paper imbued with a solution of guaiacum resin, and moistened with a solution of cupric sulphate at the moment of use. In contact with hydrocyanic acid, either in solution or diffused in the atmosphere, the prepared paper immediately assumes a blue color.

The solutions are made of three parts guaiacum resin in 100 parts alcohol; and one part of cupric sulphate in 500 parts water. London Ph. Journ., Jan. 1869, 430.

ALLYL-ISOSULPHOCYANIDE.—OIL OF MUSTARD.

Artificial formation of Mustard Oil. When benzylamin (isomorphous with toluidin) is dissolved in bisulphide of carbon, and the resulting white crystallising body is distilled with alcohol and mercuric chloride, phenyl-isosulphocyanide is obtained, which in all its properties seems equal to allyl-isosulphocyanide. The oil is separated from the distillate by the addition of water. Ber. d. Deutsch. chem. Ges. No. 15, 1868.

URIC ACID.

Preparation from Guano. In order to prepare the acid, from guano on a large scale, J. Loewe devises the following method: Equal weights of guano and sulphuric acid are operated upon by adding the ground and dried guano, little by little, into the warm acid, continually stirring the mixture; when the evolution of gases ceases, the mixture is diluted with from 10 to 12 times its bulk of distilled water. A yellow precipitate ensues, which, when settled, is separated by decantation; it is then washed by repeated decantation, until the sulphuric acid is nearly removed; the precipitate is then, little by little, added to a boiling weak alkaline solution, and the uric acid precipitated from the alkaline fluid by means of hydrochloric acid. The crude uric acid thus obtained is purified by the process of either Wöhler or Heintz. Journ. f. prakt. Ch. 1868.

Urine Analysis. C. Neubauer publishes, in Fresenius Zeitsch. f. analyt. Ch. 1868, and in Viertelj. Sch. f. Ph. 18, 55, novel contributions to the urine analysis, too lengthy and concrete for a brief report.

AMINES.

MONAMINES.

Anilin. Toluidin, as well known, assumes a yellowish-brown color with calcium hypochlorite; if therefore it be contained in aniline, as is frequently the case, the latter will show the reaction of the former. This impediment will be overcome, however, by the addition of some ether which dissolves the brown coloring product and restores the blue anilin reaction. Zeitsch. f. anal. Chem. vi, 357.

ORGANIC BASES.

NATURAL ORGANIC BASES OR ALKALOIDS.

CINCHONA ALKALOIDS.

Solubility of Quinine. F. Sestini instituted a series of experiments in order to establish its solubility, and states that:

1 part anhydrous quinine requires 1667 parts water of 20°C., and
 1 part hydrate of quinine " 1428 " " " "
 and that

1 part anhydrous quinine requires 902 parts water of 100°C., and
 1 part hydrate of quinine " 773 " " " "
 for solution.

Sestini states further that alkaline salt solutions, if of moderate strength, favor the solution of quinine; that the alkaline hydrates greatly diminish its solubility. *Zeitsch. f. anal. Chem.* vi, 359.

Fluorescence. G. G. Stockes communicated to the Brit. Chem. Assoc. the results of a series of experiments with relation to the fluorescence of quinine and the effect of the different acids and their salts upon this remarkable phenomenon. *Ch. N. A. Rep.*, May 1869, 254.

Testing for Salicin. M. Snoden has submitted the well known methods of examining quinine sulphate for salicine to comparative tests, and states that the three modes, viz., the old one by means of sulphuric acid, the mode of Bourlier, (*Journ. de Pd. de Ch.*, July, 1859, p. 34,) and the mode of Parrot, (*Proc.* 1868, p. 260,) answer the purpose satisfactorily, and that the old method, because of its simplicity, is the most convenient. Snoden ascertained, however, that this test requires the application of the monohydrated sulphuric acid, or Nordhausen oil of vitriol, otherwise the formation of the purple rutelin from the salicin will not be effected. But in order to prevent the carbonification of the quinine, any rise of the temperature of the mixture has to be avoided. *Upsala Läk. foeren. Foerhandl.* iii, 707.

Excipient for Quinine. Jas. Kemble, in the *A. J. Ph.*, Nov., 1868, 517, recommends the syrup of chocolate as an excipient for the administration of quinine, as it completely disguises its

bitter taste. Since, however, the addition of any acid calls forth the bitter taste, Kemble suggests to effect the solution of the quinine in the stomach by taking a suitable quantity of acid in the form of lemonade after the administration of the quinine.

Quinine Arseniate. F. Sestini suggests the following method for the preparation of arseniate of quinine: 14.2 parts of anhydrous quinine and 32.4 parts of arsenic acid are dissolved in 300 parts of alcohol, the solution is evaporated to half its original volume and is then left to spontaneous evaporation, when the crystals of the quinine arseniate appear. Zeitsch. f. Anal. Ch., vi, 359.

Quinine Valerianate. Lalien suggests the following method for the preparation of quinine valerianate: Sufficient potassium hydrate is dissolved in alcohol to exactly neutralize the sulphuric acid contained in the quantity of quinine sulphate to be operated upon. Then the potassic solution is accurately saturated with valerianic acid. To this solution of potassic valerianate is added the equivalent quantity of quinine sulphate, and the resulting decomposition is accelerated by agitation. Finally the potassic sulphate is separated upon a filter, is washed with some alcohol, and the alcoholic solution of quinine valerianate is evaporated to crystallization. The yield corresponds in weight about to the quantity of the quinine sulphate operated upon. Journ. de Ph. d'Anvers., xxiv, 289.

Quinidine. The numerous researches on the cinchona bases have been considerably entangled by the number of names and synonyms attributed to some of them, especially to the base, now properly designated quinidine. The researches of V. Heyningen, Pasteur, De Vrij and, recently, the elaborate studies of O. Hesse (Ann. Ch. & Ph., 146, 257) have cleared up all confusion and established, with evidence, that the substances found, prepared and examined and called by the various investigators chinotine, cinchotine, pitayine, β quinine, β quinidine are all the same base now called quinidine, or by Hesse, conchinin, which latter name, however, had better be dropped in favor of the generally accepted name of quinidine. Hesse has prepared and studied the pure quinidine and a number of its salts.

Quinoidine or amorphous quinine is the well-known, dark colored, resin-like mass obtained from the refuse, or mother-liquors of the quinine manufacture. It is said to be identical in composition with quinine, and to bear to quinine about the same relation that uncrystallizable saccharose bears to ordinary sugar. Being a powerful febrifuge, it has recently again come in greater use. F. Jobst (N. Rep. Ph. xvii, 385) has prepared a readily soluble quinoidine citrate in scales, which he recommends as an excellent substitute for quinine when used as a febrifuge.

OPIUM ALKALOIDS.

Detection of Morphine. Dragendorff and Kanzmann have published, in the Ph. Zeit. f. Russl. and in Viertelj. Sch. f. Ph., xviii, 33 and 183, the result of a series of elaborate researches on the detection of morphine and narcotine in animal substances which are altogether too extensive for recapitulation in this report but which are highly interesting for toxicological science, and which probably will be published in a pamphlet.

Apomorphia. Aug. Matthiessen and C. R. A. Wright, in their investigations of the constitution of the opium bases, obtained a new base which they call apomorphia, by heating morphia with a large excess of hydrochloric acid to 140°–150° F. for two or three hours. After cooling, no gas is found in the tube, nor is there any formation of chloride of methyl. The residue in the tube contains the hydrochlorate of the new base. It may be obtained in a state of purity by dissolving the contents of the tube in water, adding excess of sodium bicarbonate, and extracting the precipitate with ether or chloroform, in both of which the new base is readily soluble, whilst morphia is almost insoluble in both menstrua. On shaking up the ethereal or chloroform solution with a very small quantity of strong hydrochloric acid, the sides of the vessel become covered with crystals of the hydrochlorate of the new base. These may be drained, washed with a little cold water, in which the salt is sparingly soluble, and re-crystallized from hot water and dried on bibulous paper, or over sulphuric acid.

This hydrochlorate contains no water of crystallization. After

drying it yielded results, on combustion with chromate of lead and oxygen, agreeing with the formula $C_{17}H_{17}NO_2HCl$. From a solution of the hydrochlorate in water bicarbonate of sodium precipitates a snow-white non-crystalline mass, which speedily turns green in the air, and is therefore difficult to obtain dry in a state of purity. This precipitate is apomorphia. It hence appears that the new base is formed from morphia by the abstraction of the elements of one equivalent of water.

When the hydrochlorate of apomorphia in a moist state is exposed to the air, it turns green from oxidation, as the change of color is accompanied by an increase of weight. The base itself, newly precipitated, is white, but it speedily turns green on exposure to air. The green mass is partly soluble in water, communicating to it a fine emerald color, in alcohol yielding also a green tint, in ether giving a magnificent rose-purple, and in chloroform a fine violet tint.

The physiological effects of apomorphia are very different from those of morphia; while the latter is a powerful narcotic; the use of which is apt to be followed by subsequent depression, the new base is free from narcotic properties, but is a powerful emetic, the action of which seems not to be attended by injurious after-effects. One-fourth of a grain produces vomiting. Ch. N. A. R., Aug., 1869, 83.

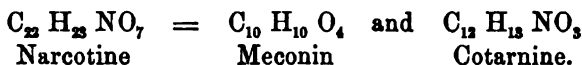
Papaverin. Dr. Leidersdorf has studied the physiological action of papaverin on man; he recommends the hydrochlorate in doses of from one-half a grain to one grain for internal use, and from three to five drops of a solution of six grains of the hydrochlorate of papaverin to 60 drops of water, for subcutaneous injection. It acts as a narcotic and soporific, and produces muscular relaxation. *Wochenbl. d. Zeitsch. d. Ges. der Aerzte in Wien*, 1868, No. 14, and *Am. J. Med. Sci.*, Jan., 1869, p. 237.

Distinction between Morphine and Papaverine. The double iodide of potassium and cadmium affords, according to W. W. Hoffmann and C. Schroff, a characteristic reagent for distinguishing morphine and papaverine, since it produces with the latter a white, shining precipitate, and white needles with mor-

phine, which are readily recognized under the microscope. Wien. Med. Wochenscf., 1868, N. 68, 936.

Narcotin.—The products of narcotin, when acted upon by oxidizing agencies, have been the subject of close inquiry by Woehler, Blyth, Anderson, and recently by A. Matthiessen and G. C. Foster. The latter have communicated in a paper to the Royal Soc. Feb. 18, 1869, the results of their continued investigations on the constitution of narcotin, and came to the interesting conclusion that ordinary narcotin has the formula $C_{22}H_{23}NO_7$, that it includes three atoms of methyl which can be displaced, respectively substituted by hydrogen atoms, so that there is a homologous series of narcotins. Four of them were obtained; they are amorphous bases, and seem to have no marked physiological action.

A recent observation made by Matthiessen and Wright is especially noteworthy, as it explains the *origin of meconin in opium extracts*. By the action of water on narcotine, at an elevated temperature, the base splits up into meconin and cotarnine, thus :



This interesting discovery confirms the probable supposition that some of the numerous bodies which are named in analyses of opium are not actual educts, but merely products of decomposition. Proc. Norwich Meet. 1868, 57.

STRYCHNOS ALKALOIDS.

Detection of Strychnine. To detect the presence of strychnine in cases of poisoning, M. Cloetta suggests the following method: Any albumen which may be present in the liquid is first removed, subacetate of lead added, and the liquid filtered; the excess of lead is removed by sulphhydric acid, another filtration made, and the filtrate evaporated to dryness. The residue thus obtained is left in contact with ammonia for 24 hours, then agitated with double its volume of chloroform, and the chloroformic solution evaporated; this residue is dissolved in 2 c. c. water containing pure nitric acid, the solution filtered, and to the filtrate one drop of a solution of potassium dichromate is

added. At the end of a few days crystals of strychnine chromate appear, in which the chemical characters of strychnine may be recognized.

The author affirms that, by this process, he has been enabled to prove the presence of one-twentieth grain of strychnine in 650 c. c. of urine. Ch. N. A. R. March, 1869, 142.

A still simpler process is given by Schachtrupp. It consists in saturating the suspected substance with ammonia, and allow it to dry spontaneously; then it is heated with a little amylic alcohol, after which a few drops of this liquid are added to sulphuric acid and potassium dichromate, when, if strychnia is present, the well known coloration will be obtained. Zeitsch. f. Anal. Chem. vii. 284.

(The method of Cloetta seems to be unreliable in some cases. Dragendorff's method is, as A. Masing has more recently, by elaborate investigations, ascertained, very reliable and accurate. Dragendorff, as will be remembered, uses benzol as a means to separate the strychnine. The method has been the subject of former reports, and has since been published. Vid. Literature.)

Dr. Richter, of Goettingen, some years ago, stated that animals poisoned with strychnine can be saved by artificial respiration, and when the muscles have been already paralyzed, by administration of curare. More recently, Prof. Rosenthal and Dr. Leube have shown that even fatal doses of strychnine, to a certain extent, do not at all take effect if the artificial respiration is applied at once. Rosenthal and Uspensky have obtained the same effect also in cases of poisoning with brucin, thebain and coffein, but failed to observe it with nicotin and picrotoxin. Ph. Centr. Halle, 1869, 11.

Strychnine and Ammonic-Sulphhydrate. Vid. page 201.

ACONITE ALKALOIDS.

German and English Aconitine. Merk, in Darmstadt, compared his aconitine with samples of commercial English aconitine. The former is soluble in 2 parts ether, 4.25 parts alcohol, and 2.6 parts chloroform. From all these solutions it is obtainable only in an amorphous resin-like state. It softens in boiling

water, can be kneaded, and becomes brittle after cooling. The English aconitine, however, is but slightly soluble in ether, and still less in alcohol and chloroform; from its solution in boiling ether or alcohol it crystallizes. It does not soften in hot water. Merk concludes that the English aconitine cannot be accepted as an officinal aconitine, the less, as recent experiments have evinced that the crystallized aconitine is far less effective than the amorphous one. London Ph. J. Oct., 1868, 248.

Hübschmann has subjected the English aconitine to repeated investigations (Schweiz. Woch. Sch. f. Ph. 1867, 405, *ibid.* 1868, 189.) His results are identical with Merk's. Hübschmann found further, that English aconitine does not dissolve in cold benzol, remaining pulverulent, but it dissolves when warmed, and separates again on cooling, partly in crystals, partly amorphous. Sulphuric acid does not change the English aconitine, whilst it dissolves the German with a yellow color; the latter, when brought into benzol, assumes the form of resinous drops, which gradually dissolve. According to Hübschmann, one part of the English aconitine requires for solution 100 parts warm ether, 20 parts boiling alcohol, and 250 parts chloroform.

This variance of officinal aconitine finds its explanation by the statement (Ph. Centr. Halle, No. 13, 1869), that aconitine in England, to all appearance, is obtained from the roots of *Aconitum ferox*, Wall., which grows upon the slopes of the Himalaya Mountains, the tubers being extensively brought into commerce. They are richer in aconitine, but this, to all appearance, differs from that derived from *Aconitum napellus*, L. The root of the latter even is the officinal of the British Pharmacopœia, and Hager agrees with Merk, that the aconitine prepared from *Aconitum napellus*, L., at present, can be the only aconitine admissible for medicinal use.

ALKALOIDS OF SOLANACEÆ.

Hyoscyamine. By Prof v. Schroff's experiments with Grandvall's Extracts, it appears that hyoscyamine surpasses atropine in its mydriadic effect, and that a thousand-fold dilution sufficiently expands the pupil of the eye. N. Rep. Ph. xvii. 335.

ALKALOID OF IPECACUANHA.

Emetine. Processes for the preparation of this alkaloid have successively been introduced by Pelletier and Magendie, by Dumas, by Leprat, by Rabourdeis and others. Recently J. Lefort has suggested an improved method :—the powdered ipecacuanha is exhausted by percolation, first with alcohol of 86 per cent. and subsequently with alcohol of 56 per cent. ; the united tinctures are distilled to recover the spirit, and the residue is evaporated to a syrupy consistency ; this extract is poured into a well-stoppered bottle, and for every 100 parts of ipecacuanha which has been operated on, two parts of potassium hydrate, dissolved in a little water, are added, together with a volume of chloroform nearly equal to that of the mixture. As the emetine is very soluble in potash, and as the alkaline solution rapidly absorbs oxygen from the air, the flask should be completely full. The mixture is agitated and allowed to repose for some days ; the chloroform separates and collects at the bottom of the flask ; it is removed by a pipette, and replaced by a fresh quantity. The alkaline liquid may be considered to be exhausted when the chloroform comes out colorless, or almost so. The chloroform solutions are then mixed and distilled to recover the chloroform. The residue is deep brown, and is composed principally of emetine and a resinous matter ; they are separated by treatment with a weak acid, which dissolves only the alkaloid. The solution is exactly decomposed by ammonia, avoiding any excess thereof. The emetine is washed by decantation, and finally dried. It forms a light whitish powder of bitter taste, turns slightly brown in the air, but does not absorb moisture. Journ. de Ph. & Ch. April, 1869.

Separation of the Alkaloids in Forensic Analysis. Dragendorff publishes a continuation of his former essay (N. Rep. Ph. xv, 598—499) a series of elaborate researches in regard to the separation of the most important alkaloids in forensic analysis. The author substitutes the use of benzol and amyl alcohol by that of chloroform and the so-called petroleum ether, (that part of petroleum obtained and purified by fractional distillation between 35° and 80°C.) N. Rep. Ph. xiii, 281—306.

Hager suggests the trinitrophenyl (picric acid) as a *reagent* which precipitates a number of *alkaloids*, and which has the advantage over the usual precipitants, to facilitate the process of washing. When vegetable substances are to be examined for the amount of alkaloids contained in them, they have to be digested with water acidulated with sulphuric acid. The filtrate is then tested with an excess of a saturated solution of trinitrophenol. The following alkaloids are precipitated:—strychnine, brucine, veratrine, quinine, quinidine, cinchonine; the following are not precipitated,—atropine, morphine, coffeine, and most glucosides. Ph. Centr. Halle. 1869, No. 17.

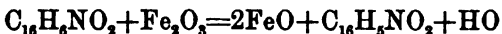
UNCLASSIFIED ORGANIC COMPOUNDS.

ORGANIC COLORING PRINCIPLES.

INDIGO.

Solubility of Indigo. C. Koechlin has discovered the curious fact of the solubility of indigo in the salts of some of the alkaloids, particularly in the acetates and chlorides of aniline, morphine, etc. Ch. N. A. R. May, 1869, 263.

Estimation of the Value of Indigo. G. Leuchs estimates the indigo-blue, the chief valuable constituent of indigo, in the following manner:—by means of 35 grms. of lime and 30 grms. of protosulphate of iron, 10 grms. of indigo are dissolved in three litres of water. In order to exclude the access of air, some petroleum was poured on the top of the fluid. The experiments led to the result that this solution reduces an equal equivalent of ferric oxide, and that this reaction proceeds as expressed by—

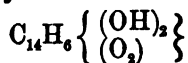


In order to test any sample of indigo, 1.31 grms. thereof are so mixed with lime and ferrous sulphate as to form a solution measuring 300 c. c., which is put into a cylindrical glass vessel provided with a well-fitting glass stopper. To 100 c. c. of the solution thus obtained, 66½ c. c. of a solution containing $\frac{1}{10}$ equivalent of iron alum acidulated with sulphuric acid are added; this mixture is filtered, and 100 c. c. of the filtrate are taken and titrated with a solution containing $\frac{1}{10}$ potassium bichromate,

which is best run into the indigo containing fluid from a burette having divisions of $\frac{1}{2}$ c. c., in which case every division is equal to one per cent. indigo-blue. *Zeitsch. f. Ch.* 1869, No. 9.

Reduction of Indigo-Blue. According to A. Baeyer, indol may be obtained directly from indigo, by treating the latter with tin and chlorhydric acid. A green substance, a compound of indigo-white with suboxide of tin, is first formed, which on continued heating becomes yellow, being converted into a compound of tin with a further reduction of indigo-blue. This yellow compound, mixed with a little water and powdered zinc, when heated gives out indol in large quantities. *Ber. d. Deutsch. chem. Ges.* 1868, 17.

Alizarine. For a number of years past many chemists have tried to obtain the valuable alizarine by artificial means. In 1861 M. Roussin thought he had succeeded, by withdrawing from binitro-naphthaline two equivalents of oxygen, and by converting at the same time the nitrogen into ammonia. Although this experiment was unsuccessful, it has, no doubt, been made the starting point for the important solution of this problem, which Graebe and Liebermann, at Berlin, have recently brought to a successful issue. By heating alizarine with zinc dust, a hydrocarbon was generated, which, instead of naphthaline, proved to be paranaphthaline, (anthracene,) which, according to the researches of Anderson, Fritzsche, Limpricht, and Berthelot, has the formula $C_{14}H_{10}$. This fact caused alizarine to be considered as a derivative of anthracene, and to admit for it the composition of $C_{14}H_8O_4$ expressed by the rational formula :



It will be observed that this formula differs from that of anthracene only by having 2 atoms=4 equivalents of oxygen more, and 2 of hydrogen less, than that of anthracene.

Having thus obtained anthracene as a product of alizarine, the same chemists have succeeded in solving the inverse problem, viz: the artificial preparation of alizarine by means of anthracene.

The process of this transformation of paranaphthaline into alizarine, is described at length in *Ber. d. Deutsch. chem. Ges. zu*

Berlin, ii, 14, and in Ch. N. A. R. June, 1869, 303, and in Monit. Scientific, No. 296, April 15, 1869.

Considering the enormous consumption of madder in dying and printing, this remarkable discovery, being the first instance of the artificial formation of a natural coloring matter, will, it is to be hoped, become of great practical importance when the means should be found to render it universally applicable.

FERMENTS.

M. Mialhe, at a meeting of the Soc. de Pharm., gave an account of his researches on the preservation of ferments. The conclusion to be drawn from these researches is, that physiological ferments will retain indefinitely their action when suitably dried. This fact confirms the assertion of Rouchoux relative to the activity of dry vaccine lymph, and of Mangili, relative to the dried poison of the snake. Ch. N. A. R., Sept., 1869, 149.

ANIMAL CHEMISTRY.

MILK.

Heretofore the *casein of the milk* was believed to be kept in solution by the alkaline state of the milk. Müller has shown that casein can form a modification which is soluble in water, and that this modification is the same as in natural milk. Müller bases his conclusions upon the following experiments: Casein, when precipitated by weak acids and washed and dried, was redissolved, one part in dilute sodium hydrate, another one in a solution of sodium phosphate. Both of these solutions were submitted to dialysis on a star filter of parchment paper. Within twenty-four hours the sodium hydrate, as well as the sodium phosphate, had passed through the vegetable tissue, while the dialyser contained a liquid of the same appearance as before, which was neutral, did not change when boiled, and yielded a precipitate of all its casein on the addition of alcohol or diluted acids. Journ. f. prakt. Chem., 103, 49.

M. Commaille established the presence of *kreatinine in decomposing milk*. He believes it to be formed by dehydration from kreatine, already present in the milk. Ch. N. A. R., March, 1869, 142.

New Color Test for Blood. A mixture of guaiacum tincture (resin or wood?) and peroxide of hydrogen dissolved in ether is said to produce a distinctly blue tint with blood, blood stains, etc., even when they are as old as twenty years. *Lancet*, March 20, 1869, and *Am. D. C.*, Aug., 1869,

PHARMACEUTICAL LEGISLATION, STATISTICS AND PRIZE SUBJECTS.

Great Britain. With the new pharmacy act of 1869 British pharmacy has commenced to abolish many obsolete and detrimental usages. It will, however, require years before the effect and the working of the new law can be measured and justly appreciated. In Germany the present English poison law is considered as inadequate to the standard of modern legislation in pharmacy. That this view is not groundless has already been verified by several preparations of opium and opiates, which have since been gotten up in England under pretended or secret names and forms, and are sold partly through illicit channels.

France. The consequences of free trade upon French pharmacy and pharmacutists call forth more and more serious consideration. Dorvault, one of the most prominent pharmacutists of France, gives expression to the present unsatisfactory state of French pharmacy in a paper—"La pharmacie française du présent, de ses réformes," (*L'union pharmaceutique*, No. 5, 1869.) In a review on the subject, Dorvault makes the following concluding remarks: "The practice of pharmacy as conducted in France (as a free trade) means to expose the life and happiness of our fellow-men to a mischievous imposition; it means to fall back into mediæval conditions, and to sacrifice achievements accomplished and arrived at by the toil, the genius and the means of civilization during centuries. Pharmacy ought not and cannot be made an unrestricted trade, open to every imposter and to incompetency. The pharmacist must be made responsible to the government and to the law, and pharmacy must be conducted in accordance with all requirements for the

public weal and with the intelligence and the spirit of the age. Pharmacy is less a mere trade than a public office of trust. The true interest of humanity raises the duties of the pharmacist as well as of the physician, however trifling and subordinate they may appear in detail, to the height of the noblest professional functions."

Germany. In northern Germany laws are in course of preparation calculated to facilitate the practice of pharmacy and to modify the old privileges.

The great laboratories at the Universities of Berlin, Bonn and Leipzig have been finished. They will, in connection with those famous Universities and under the guidance of the best chemists of our day, continue to be seminaries of the chemical sciences and related technical occupations.

Italy. The practice of pharmacy has been the subject of contemplation of a government commission, charged with reporting a new pharmacy code. The practice is left free to competition in principle, but under the double guarantee of the diploma and governmental surveillance. This restriction on absolute liberty is in accord with public opinion and interest, and prevents the encroachments and inconveniences of the illicit sale of pharmaceutical products.

A common Pharmacopœia for united Italy, under the editorial care of Prof. Semnola, is in progress.

Italy, including the Papal States, had, in Dec., 1868, 10,307 pharmacists, which makes one for every 3438 inhabitants.

Spain enjoys comparatively good medical institutions and laws. Its present Secretary of the Interior has abolished old abuses. He has freed the universities of the guardianship of the church, and has given them self-government and freedom of instruction; he has opened their lecture-rooms, collections and libraries to the general use and benefit; he has nominated, in all the Provinces, Medical Boards, composed of a physician, a pharmacist and a lawyer, and under his direction a commission of competent experts is at work to suggest a reform of the legislation on medicine and pharmacy, which, when finished and approved, will be submitted to the consideration and adoption of the Cortes.

Holland enjoys new legislative reforms in pharmacy since 1865; they apparently work to the general satisfaction. Holland, as is well known, has free trade. In December, 1868, there were, with three and a half millions of inhabitants, 909 pharmacies; accordingly, one to every 3,850 inhabitants.

The decimal weight will be introduced obligatorily in the pharmaceutical practice in Holland, on and after the 1st of January, 1872.

Austria. The new Pharmacopœia has made its appearance.

A reform of the medical laws is intended, the labor having been entrusted to a commission of competent professional delegates.

Rumænia. Since the first of January of the present year, the new medical codex of the 30th November, 1867, has become a law.

Russia. In Russia pharmacy is principally in the hands of Germans, and is to all appearance an established profession. Pharmaceutical education and the practice of pharmacy are regulated somewhat like those in Germany, and the pharmaceutical chairs at the Universities of St. Petersburg and Dorpat are in excellent hands. The pharmaceutical associations in Russia seem to be in a flourishing state.

United States. The urgent necessity of proper legislation regulating the practice of Pharmacy and the sale of poisons, and for the prevention of adulterations and misuses of drugs and medicines, becomes more and more impressed upon the public. In no civilized country, perhaps, are the existing laws in this respect so totally inadequate, and a dead letter, and scarcely any community is exposed to criminal incompetence and imposture to such an extent, without adequate punishment, as ours. For the very reason of our republican institutions, the exercise of a profession with such momentous responsibility ought to be restricted to competent and conscientious persons only. Another remedy of those crying evils of which we hear so frequent and just complaints, is to give the pharmacist an education corresponding with general progress. These conditions can only be met through the enactment of suitable laws, and through the

creation of some competent authority having control of the education of pharmacutists, and responsible for the vigorous enforcement of the laws.

Surely it becomes this Association to anticipate all legislative action by taking the initiatory steps in this much needed reform.

An event of special importance to pharmacy will happen during the coming year, which ought to claim the serious consideration of this Association, though it, unhappily, cannot be directly represented in the National Convention for the decennial revision of our Pharmacopœia, which will meet in Washington, D. C., on the fourth of May next. The considerable progress of pharmacy during the last ten years, the rapid increase of the means and the consequences of international communication, and the continued influx of European emigration and education, render a thorough revision, and perhaps a partly new edition of our national Pharmacopœia, desirable and necessary. The committee of revision will have to examine not only the vast material accumulated during the last ten productive years, but it will also have to meet the just claims of the increasing number of accomplished practitioners of medicine, well acquainted, and justly appreciating the excellence of some European Pharmacopœias, and therefore will have to give due consideration to the acknowledged superiority of such standard works as the Prussian Pharmacopœia and the new Pharmacopœia Germanica.

It would also be well to consider whether the time has not yet arrived, simultaneously with the effort to legally regulate the practice of pharmacy, to make the effort to legally recognize the United States Pharmacopœia, and make it obligatory upon the practice of pharmacy throughout the United States.

Convinced by a comparative survey of the pharmaceutical literature of the day, it may not be inopportune in this place to direct the attention of our young pharmacutists to a point which has been, and still is, often pressingly urged upon the students of our American colleges, by such men as Edward Everett, L. Agassiz, Longfellow, G. Bancroft, Emerson, Bayard Taylor and many others, namely: to study, if it has not already been accomplished by their previous education, the German language, at

least so far as to be able to read it, and thus to partake of the advantage of the excellent and vast literature which that language possesses in all branches of sciences and arts.* The impress of this want being confessedly perceptible in a greater or less degree in all our scientific literature, this lack is strikingly observable and felt in the pharmaceutical and collateral literature.

The third international Congress of Pharmaceutical Societies and Associations will convene simultaneously with the 17th Annual Meeting of this Association, at Vienna, in Austria.

PRIZE QUERIES FOR 1870.

England. The Pharmaceutical Society offers the botanical prize for 1870 for the best herbarium, collected in any part of the United Kingdom. Time of delivery, before the first of July, 1870.

France. The Société de Pharmacie has offered a prize for the discovery of the artificial preparation of quinine, or a new organic compound with equal therapeutical effect. Open to all. Time of delivery, before the first of July, 1870.

The Pharmacie Centrale of France offers a prize for the best treatise on the right and duties of the drug clerks, (*aides pharmaciens*).

Germany. The annual prize-query of the Hagen-Buchholz'schen Stiftung is a comprehensive examination of cubebs, their components and their preparations. Time of delivery, August 1, 1869.

* "The German nation have been continually growing and showing themselves the foremost scholars of the world. They have a certain pace, one may say, a certain endurance, a certain power to labor, which leaves all other scholars behind them. They know very well their strength, and the nations are getting to know it. It has been said of that people, 'It is not the battle of Leipzig, but it is the Leipzig catalogue which raises them above other European nations.' The German reads a literature while we are reading books, and we get more scientific facts from that country than from any other."—*Ralph Waldo Emerson, in his Boston speech at the Humboldt Centennial Celebration, Sept. 14th, 1869.*

The annual prize-query for apprentices in pharmacy is :— Examination of the commercial magnesium carbonate from various manufacturers and countries, and the determination of the quantity of water contained in each sort of magnesia.

Switzerland. The Schweizerische Apotheker Verein offers a prize for the best essay on the chloracetic acids and their preparation. Time of delivery, August 1, 1869.

Russia. The medical faculty of the University at Dorpat offer a prize for the best researches on the constitution of Picrotoxin, with particular reference to the still questionable character of this principle as a glycoside.

OBITUARY.

PHYSICISTS AND PHILOSOPHERS.

Pouillet, Claude Servais Matthias, born at Cuzane (Doubs,) 1791, died at Paris, June 3, 1869.

Foucault, Leon, born 1819, died Febr. 12, 1869, at Paris.

Oberhäuser, Georg, born 1801, at Munich, died 1869, at Paris.

Plücker, Julius, born 1801, at Elberfeld, died May 22, 1869, at Bonn.

Carus, C. G., born 1788, died July 28, 1869, in Dresden.

CHEMISTS.

Schænbain, Christian F., born Oct. 18th, 1799, died at Baden-Baden Sept. 4, 1868.

Persoz, Jean François, died Nov. 12; 1868, at Paris.

Nicklès, Jerome, born in the Alsace, died April 2, 1869, at Nancy.

Reichenbach, Karl von, born 1788, at Stuttgart, died January 19, 1869, at Leipzig.

Scherer, J. S., born 1814, died Feb. 17, 1869, at Tübingen, (Germany.)

Werther, August Friedr. Karl, born 1815, at Roslau, died June 28, 1869, at Königsberg, (Prussia.)

Ullgren, Clemens, died Nov. 9, 1868, at Stockholm.

PHARMACEUTISTS.

Bley, Karl Ludwig, born 1801, at Bernburg, died *ibid.* May 13, 1868.

Winkler, F. L., died in Darmstadt, Sept. 6, 1868.

BOTANISTS.

Martius, Karl Friedrich Philip von, born 1798, in Erlangen, died Dec. 13, 1868, at Munich.

Schnitzlein, Adalbert, born 1814, died Oct. 24, 1868, at Erlangen.

ZOOLOGISTS.

Poeppig, Eduard, born 1798, at Plauen, died Sept. 4, 1868, at Wahren, near Leipzig.

Serres, August, born 1787, died Jan. 24, 1868, at Paris.

PHARMACEUTICAL LITERATURE.

PHARMACOGNOSY.

O. Berg, *Pharmazeutische Waarenkunde*, 4. Aufl. bearb. von Dr. Garke, Berlin, 1869. Rud. Gaertner.

C. D. Schroff, *Lehrbuch der Pharmacologie*, mit besonderer Berücksichtigung der oester. Pharmacopœ von 1869. Wien, 1869, Braumüller.

PHARMACY.

F. H. Lescher, *Introduction to the Elements of Pharmacy*. London, 1869.

A. Casselmann & C. Frederking, *Lehrbuch der gesammten Pharmacie und ihrer Hülfswissenschaften*. Riga, 1868.

M. Dechamps, *Compendium de Pharmacie pratique*. Paris, Baillière, 1868.

PHARMACOPŒIAS AND COMMENTARIES.

Pharmacopœa Germanica. Ed. secunda, 1868. Magdeburg.

Pharmacopœa militaris Borussica. Ed. quarta. Berlin, 1868.

Deventer, Homœopathische Pharmacopœ. Berlin, 1868.

Pharmacopœa Austriaca. Wien, 1869.

Pharmacopœa Suecica. Edit. septima. Stockholm, 1869.

H. Hager, Pharmacopœæ recentiores Anglica, Gallica, Germaniæ, Helvetica, Russiæ, inter se collatæ. Breslau, 1869.

G. Birkett, Thompson's Conspectus, adapted to the British Pharmacopœia. Longman's. London, 1868.

Guhler, Commentaires thérapeutiques du Codex medicamentarius, etc. Paris, 1868. Baillière.

Dispensatorio farmaceutico accomodato ai bisogni agli usi ad all'economica dell'ospedale maggiore di Bergamo. Bergamo, 1868.

BOTANY.

J. Sachs, Lehrbuch der Botanik nach dem gegenwärtigen Stande der Wissenschaft. Leipzig, 1868. Engelmann.

W. Hofmeister, Allgemeine Morphologie der Gewächse, (second part of the "Handbuch der physiologischen Botanik). Leipzig, 1869.

Th. Liebe, Die Elemente der Morphologie. Berlin, 1869. Hirschwald.

F. Unger, Botanische Streifzüge auf dem Gebiete der Culturgeschichte. Wien. Gerold, 1868.

Jul. Wiessner, Einfluss der Erdschwere auf Groessen- und Formverhältnisse der Blätter.

H. Hager, Botanischer Unterricht für angehende Pharmaceuten. Springer. Berlin, 1869.

O. Schlickum, Wie soll der junge Apotheker Botanik treiben? Kurze Anleitung zum Studium der Botanik, nebst einem vollständigen botanischen Wörterbuche. Neuwied, 1868.

CHEMISTRY.

H. B. Jones and H. Watts, Fownes' Manual of Elementary Chemistry, 10 edit. London, 1868.

R. Bridges, Fownes' Manual of Elementary Chemistry; abridged from the 10 Engl. edit. Philadelphia, 1869.

H. E. Roscoe, Lessons in Elementary Chemistry. New edit., London, 1869.

- John Attfield, Chemistry, general, medical and pharmaceutical. London, 1869.
- Shuttleworth and Karz, First Principles of Modern Chemistry. London, 1868.
- W. Oddling, A Course of Practical Chemistry, arranged for the use of medical students. Reprinted by H. C. Lea. Philadelphia, 1869.
- C. F. Woodward, Arithmetical Exercises for chemical students. London, 1869.
- A. Wurtz, *Leçons élémentaires de chimie moderne*. Paris, 1868.
- Vict. Francken, *Manuel de Chimie générale théorique*. Paris, 1869.
- A. Wurtz, *Traité élémentaire de chimie médicale comprenant quelques notions de toxicologie et les principales applications de la chimie à la physiologie, à la pathologie, à la pharmacie et à l'hygiène*. Paris, 1868.
- C. W. Blomstrand, *Die Chemie der Jetztzeit vom Standpunkte der electro-chemischen Auffassung*. Heidelberg, 1869.
- H. L. Buff, *Kurzes Lehrbuch der unorgan. Chemie, entsprechend den neueren Ansichten*. Erlangen, 1868.
- F. Elsner, *Grundriss der pharmaceutischen Chemie nach den modernen Ansichten*. Berlin, 1869.
- R. Arend, *Lehrbuch der unorgan. Chemie, nach den neuesten Ansichten der Wissenschaft*. Leipzig, 1868.
- M. Zaengerle, *Lehrbuch der Chemie nach den neuesten Ansichten der Wissenschaft*. München, 1868.
- A. Husemann, *Grundriss der Chemie*. Berlin, 1868.
- Friedr. Mohr, *Mechanische Theorie der chemischen Affinität und die neuere Chemie*. Braunschweig, 1868.
- Raph. Saez-Palacios, *Tratado de Quimica inorganica, teórico y práctico, aplicada à la medicina y especialmente à la farmacia*. Madrid, 1869.
- L. F. Sonnenschein, *Handbuch der gerichtlichen Chemie*. Berlin, 1869.
- G. Dragendorff, *Die gerichtlich-chemische Ermittlung von Giften in Nahrungsmitteln, Luftgemischen, etc.* St. Petersburg, 1868.
- C. L. Bloxam, *Laboratory Teaching; or progressive exercises in practical chemistry*. London, 1869.

- A. Payen, *Précis de chimie industrielle à l'usage, &c.* 5 édit. Paris, 1869.
- J. H. Pepper, *Cyclopædic science simplified.* London and New York, 1869.
- A. Wurtz, *Dictionnaire de chimie pure et appliquée.* Paris, 1869.
- W. Oddling, *A course of six lectures on the chemical changes of carbon.* London, 1869.
- J. A. Wanklyn and E. T. Shapman, *Water analysis: a practical treatise on the examination of potable waters.* London, 1868.
- Ed. Hement, *Histoire d'un morceau de charbon.* Paris, 1869.
- Abbé Moigno, *Saccharimétrie optique et chimique.* Paris, 1869.
- Oskar Liebreich, *Das Chloralhydrat und dessen Anwendung in der Medizin.* Berlin, 1869.
- H. Kolbe, *Ueber die chemische Constitution der organischen Kohlenwasserstoffe.* Leipzig, 1868.

CHEMICAL ANALYSIS.

- H. C. Roscoe, *Six lectures on Spectral Analysis, delivered in 1868, before the Society of Apothecaries, in London.* D. Appleton, New York, 1868.
- G. C. Wittstein, *Anleitung zur chemischen Analyse von Pflanzen und Pflanzenbestandtheilen.* Noerdlingen, 1868.
- A. Casselmann, *Analyse des Harns.* St. Petersburg, 1868.

HISTORY OF CHEMISTRY.

- H. Kopp, *Beitrage zur Geschichte der Chemie.* Leipzig, 1869.
- A. Wurtz, *Histoire des doctrines chimiques depuis Lavoisier jusqu'à nos jours. Discours préliminaire.* Paris, 1868.
- A. Wurtz, *A history of chemical theory from the age of Lavoisier to the present time; translated by Henry Watts.* London, 1869.
- B. Dupont, *Etude historique sur la chimie et la théorie atomique.* Limoges, 1869.
- A. Dumas, *Eloge historique de Michel Faraday.* 1869.

NATURAL PHILOSOPHY.

Ph. Spiller, Grundriss der Physik nach ihrem gegenwärtigen Standpunkte. Berlin, 1869.

Joh. Krüger, Grundzüge der Physik mit Rücksicht auf Chemie. 12. Aufl. 1868.

A. Deschanel, Traité élémentaire de Physique. Paris, 1869.

John Tyndall, Sound: a course of eight lectures delivered before the Royal Institution of Great Britain. London, 1869.

CRYSTALLOGRAPHY.

Frankenheim, Zur Krystallkunde. Leipzig, 1869.

COMMERCE.

Henkel, Die Naturprodukte und Industrie Erzeugnisse im Welt-handel. Vol. i. Die Produkte der drei Naturreiche als Handelsartikel. Erlangen, 1869.

Henkel, Waaren Lexicon für Droguisten, Apotheker und Kaufleute, enthaltend specielle Characteristik der gangbaren Drogen, Chemicalien und Farbewaaren nebst Anleitung zur Prüfung derselben and zur Bestimmung ihrer Güte. Stuttgart, 1868—1869.

G. Weidinger. Waaren Lexicon der chemischen Industrie und der Pharmazie. Leipzig und St. Petersburg, 1869.

J. L. Soubeiran et A. Delondre. De l'introduction et de l'acclimation des Cinchonas dans les Indes néerlandaises et dans les Indes britanniques. Paris, 1868.

Roze, La Menthe poivrée, sa culture en France, ses produits, etc. Paris, 1868.

SECRET MEDICINES.

G. C. Wittstein, Taschenbuch der Geheimmittellehre. Kritische Uebersicht aller bis jetzt untersuchten Geheimmittel. München, 1868.

MISCELLANEOUS BIBLIOGRAPHY.

Bibliotheca pharmaceutica. Verzeichniss aller auf dem Gebiete der Pharmacie von 1849—1869 in deutschen Buchhandel erschienenen Bücher. A. Büchting. Nordhausen, 1869.

Repertorium der technischen, mathematischen und naturwissenschaftlichen Journal Literatur. Berlin, 1869.*

H. L. Buff, Ueber das Studium der Chemie. Berlin, 1869.

Poleck, Ueber naturwissenschaftliche Sachverständige. Habilitationsrede gehalten in Breslau am 6. März 1869. Breslau, 1869.

P. G. A. Maring, Beiträge für den gerichtlich-chemischen Nachweis des Strychnins und Veratrins in thierischen Flüssigkeiten und Geweben. Dorpat, 1868.

Th. Kantzmann, Beiträge für den gerichtlich-chemischen Nachweis des Morphins und Narcotins in thierischen Flüssigkeiten und Geweben. Dorpat, 1868.

Reglement für die Prüfung der Apotheker in Preussen. Berlin, 1869.

Reglement für die Prüfung der Aerzte in Preussen. Berlin, 1869. Preussischer Medizinal Kalender. Berlin, Aug. Hirschwald.

Pharmazeutischer Kalender für Norddeutschland für 1869. Berlin.

Pharmazeutischer Kalender für Süddeutschland für 1869. Speyer.

Pharmazeutischer Almanach für Oesterreich für 1869. Wien.

Russischer Medizinal Kalender für 1869. St. Petersburg.

Alb. Kremer, Das neue chemische Laboratorium der Berliner Universität. Mit Kupfern. Berlin, 1868.

H. Kolbe, Das neue chemische Laboratorium zu Leipzig. Leipzig, 1868.

ESSAYS AND LECTURES OF SPECIAL INTEREST.

Letheby, Lectures on Food, in the Chemical News of 1868 and 1869.

W. Crookes, On Chemical Accuracy. Chem. News, Americ. Repr., March 1869, and Amer. Journ. Pharm., March 1869.

Jos. Ince, An Apology for Latin. London Pharmaceut. Journal, January, 1869.

Laboratories and Work Shops. Chem. News, Americ. Repr., Jan., 1869.

* A most useful work, now regularly published, under the auspices of the Statistical Bureau of the Prussian Government.

ANNUAL REPORTS.

PHARMACY.

Jahresbericht über die Fortschritte der Pharmacognosie, Pharmacie und Toxicologie, von Wiggers & Husemann. Goettingen.

NATURAL PHILOSOPHY, CHEMISTRY AND TECHNOLOGY.

Jahresbericht über die Fortschritte der Chemie und verwandten Theile anderer Wissenschaften, von Heinrich Will, etc. Giessen.

Jahrbuch der Erfindungen und Fortschritte auf den Gebieten der Physik und Chemie, der Technologie und Mechanik, etc., von Hirtzel und Gretschel. Leipzig.

Chemisch-technisches Repertorium, von Emil Jacobsen. Berlin. Gaertner.

Jahresbericht über die Leistungen der chemischen Technologie, von Rud. Wagner. Leipzig. Wiegand.

Die chemisch-technischen Mittheilungen der neuesten Zeit, von L. Elsner. Berlin. Springer.

C. F. Schoenbein, Mittheilungen aus dem Gebiete der Chemie vom July 1867, bis July 1868. Basel, 1868.

Jahresbericht über die Fortschritte auf dem Gesamtgebiete der Agricultur-Chemie, von R. Hoffmann & E. Peters. Berlin.

BOTANY.

Jahrbücher für Wissenschaftliche Botanik von N. Pringsheim. Leipzig.

Botanische Zeitung, von Hugo v. Mohl & A. de Bary. Leipzig.

CONCLUDING REMARKS.

Since the alteration of the Constitution of this Association, in 1856, a committee for the purpose of reporting on the progress of pharmacy is annually appointed, and it is evidently contemplated, by the creation of this institution, to furnish the members of the association with a complete periodical review of the professional

literature during the year. Since that time the sciences, and consequently the scientific material, have grown in volume and value, and it is questionable whether at present the knowledge, the faculties, and the labor of one individual man, upon whom also the fulfillment of practical business duties depends, may be regarded as sufficient to assimilate the vast material of the pharmaceutical literature, and of its collateral sciences, and to reproduce the same in a condensed and lucid form within a specified time.

The introduction into many branches of human labor and research of the principle of the division of labor has accomplished a great deal, and has successfully met this question by the introduction into modern literature of a new feature, that of the so-called "Annals" (*Jahresberichte*); it has been particularly useful and subservient in the natural sciences, and in all vocations based thereon. The scientific annals of the German literature are unexcelled by their comprehensiveness and solidity, and they embrace all branches of science and industrial pursuits.

In surveying the reports on the progress of pharmacy, contained in the successive volumes of the Proceedings of this Association, all competent of judging, whether and to what extent these papers give a true picture of all the material relating to pharmacy, and published during each year, whilst recognizing the labor and industry of the reporters, cannot fail to observe that a reproduction of the scientific and practical researches and labors in such a manner as to furnish a substitute for original sources of the pharmaceutical literature, has neither been nor, for the above reasons, will be attained by one who follows a pursuit, which excludes almost completely undisturbed leisure and tranquil meditation and labor.

The arguments just adduced are sufficient to warrant the conviction, that the suggestions of former chairmen regarding the desirableness of a permanent reporter on the progress of pharmacy, with whom I fully agree in principle and intention, will not fully meet the case. The extensive material, its increasing volume and variety, require the attainments and the labor of several persons, and larger space, in order to reproduce satisfactory reports thereof. I am, therefore, convinced that a reform is ne-

cessary for this institution of the Association, so excellent in its purpose. This reform would contemplate the elaboration by more than one person of an enlarged annual report, limited in volume only by the relative value or lack of value of the material presented. The increase in the cost of publication would probably be more than compensated by an increased sale of the Proceedings, or of this report alone, if in the hands of a publisher, since our literature as yet does not possess such annual reviews.

To provide for this want, which each succeeding year is felt more potently, would be very becoming for this Association, in which case the third section of the fourth article of the Constitution would have to be amended, by substituting for the present nominal committee a committee of three competent members for the term of about three years. With the material, labor and talent properly divided, their united efforts might produce a comprehensive annual report on the progress of Practical Pharmacy, on Pharmacognosy, and on Pharmaceutical Chemistry, which, besides being incorporated into the proceedings, might be published in book form by authority of the Association.

In closing this report, I thank the Association for the credit accorded to me by its appointment as chairman of the Committee on the Progress of Pharmacy. Being well aware of the deficiencies and shortcomings of the report, I trust it will meet a kind consideration. Knowledge gives power, says a well known proverb, but may I add—nothing is better adapted to deprive the mindful of all arrogance and vanity, than true knowledge and learning. Whosoever embarks upon the vast ocean of the physical sciences, cannot but be deeply impressed by the grandeur and immensity of nature's works and phenomena; for in whatever realm and in whichever vocation we may scrutinize them, whether by the microscope or the telescope, whether we may inquire into the unceasing material transformations, or bring nature's latent forces into action, in the minutest atom of the terrestrial matter, as well as in the immensity of the universe, they signalize conformity and perfection throughout the creation, and remind us of the littleness and vicissitudes of human doctrines, and of the comparative insignificance and imperfectness of our knowledge and learning, and how much there is of which we are still ignorant.

REPORT OF THE COMMITTEE ON SPECIMENS.

The Committee were pleased to note a very marked improvement in the exhibition of crude drugs over that of any previous meeting of the Association. This department is undoubtedly the most important branch, and as such we are glad to see more interest taken in it. There is still room for improvement, and your Committee hope that at the next annual meeting the display of drugs in original packages may be so full and complete as to leave nothing to be desired.

The display, as a whole, was more elaborate and complete than that of any former meeting, with the single exception of living botanical specimens. The large consignments of foreign specimens was very gratifying, and is a strong indication of the growing importance of American markets in the estimation of European manufacturers.

The display of Messrs. Gehe & Co., of Dresden, Germany, embracing Chemicals, essential and fixed Oils, extracts, powdered and concised drugs and miscellaneous articles, was remarkable for the novelty of a few, and the general excellence of all its specimens. This house is one of the largest and most extensively known of the European establishments, and manufacture pharmaceutical preparations of all kinds on a very extensive scale.

Messrs. S. Maw & Son, of London, England, made the most showy and attractive display of the exhibition, consisting of fancy goods, druggists' sundries, glass-ware and apparatus. A combination upright and horizontal show-case of mahogany and plate-glass, surmounted with a glass sign in gold and black, with sliding tables for the exhibition of the goods, accompanied the specimens from England, and was of itself very ornamental. A transparent stained-glass sign, bearing the coat of arms of the British Pharmaceutical Society, also one on embossed glass, were both beautifully executed.

The exhibition of drugs rejected by the Government Inspector at the New York Custom House, mentioned at some length in

this report, was a most interesting feature, and should be continued and enlarged upon. It is a well known fact that large quantities of worthless drugs were formerly exported to this country; that a much smaller quantity is now imported is doubtless due to the law which was passed in 1848, prohibiting drugs of an inferior quality from passing the Custom House, and providing for the appointment of inspectors at the ports of entry, whose duty it is to examine all drugs, medicines, chemicals and articles which are used as remedial agents, and reject such as are not up to the requisite standard of quality.

It is due, however, to our importers to state here that many of the drugs rejected as worthless were damaged by sea-water on the voyage, having been shipped in good condition.

Thanks are due to Prof. P. W. Bedford and Messrs. Milhau & Son of New York city, through whose influence the above collection was obtained. Thanks are also due to the Local Secretary, Mr. H. W. Fuller, and to the Chairman of the local Committee on Specimens, Mr. J. W. Mill, for untiring efforts in arranging the display and managing its details.

DRUGS.

Messrs. McKesson & Robbins, of New York, exhibited a large collection of drugs, displayed in good taste, among which the several varieties of Senna, Gum Arabic, Tragacanth, Cinchona-barks, Aloes, Scammony, Manna, Rhubarb, Ipecac, Jalap, and Dragon's Blood, were particularly excellent.

Messrs. Gehe & Co., of Dresden, Germany, exhibited a collection of powdered and concised drugs; also fixed and essential oils, extracts and miscellaneous articles, numbering in all eighty samples.

The roots, barks and woods, cut by machinery in globular and cubical shapes, are well adapted for retailing and use. The style is a new one, recently introduced by this firm. We are informed that it was the intention of Messrs. Gehe & Co. to exhibit at this meeting a comprehensive collection of their articles in comparatively large specimens; they were disappointed, however, in the non-arrival of the glass vessels and cases, yet with commendable energy forwarded what, under the circumstances, must be considered a very elegant display.

Prof. P. W. Bedford, of New York, exhibited forty-six samples of imported drugs which were rejected as worthless by Dr. A. S. Bartles, Inspector of Drugs at the New York Custom House. These specimens were a very interesting feature of the exhibition, and as such deserve an extended notice; we mention only some of the most important: Rhapontic rhubarb, seven samples, representing thirty-nine packages, valued at \$1.782; rejected as not admissable. One sample from Hong Kong, representing twenty-five cases, rejected as inferior, being worm eaten and unfit for use. Peruvian bark, five samples, representing fifty-three ceroons, from Panama, valued at \$1.115; rejected as being deficient in alkaloids, containing but a trace. Ipecac root, seven samples from Rio Janeiro, representing twelve cases, valued at \$800, rejected as spurious, not officinal. Senna leaves, three samples from Calcutta, representing twenty-six bales, valued at \$2.050, damaged. Sugar of milk, one sample, representing two casks, damaged by sea voyage. Opium, nine samples, representing twenty-eight packages various sizes, value not given; all rejected as deficient in morphia. Althea root, two samples from Hamburg, representing six bales, damaged. Fennel seed, a sample representing five bales from Hamburg; also samples of valerian root and matico leaves, all damaged. Buchu leaves, a sample from one bale damaged by sea water, and containing a large proportion of stems. Lovage root, a sample from one bale, mouldy and worm-eaten. Jalap root, three samples from Tampico, representing twenty-four bales, valued at \$2.073; rejected as not of requisite strength. Chamomile flowers, a sample, representing three bales from Paris, rejected as not of requisite strength. Sarsaparilla root, a sample representing one hundred and nineteen bales, damaged and unfit for use. Assa-fœtida, a sample representing eight cases from London, rejected as impure. Horehound, a sample representing one bale, rejected as damaged and unfit for use.

Messrs. Milhau & Son, New York, exhibited a number of interesting samples of Opium and Ipecac rejected by the examiner of drugs at the New York Custom House.

Dr. E. R. Squibb, Messrs. W. H. Schieffelin & Co., and Messrs.

Dodge & Alcott, New York, exhibited rhubarb root in original packages. Very choice samples.

Mr. Wm. Neergaard, New York, exhibited a collection of twenty varieties of cinchona bark, Russia licorice and other drugs.

Dr. D. G. Plummer, Bradford, Ill., exhibited samples of opium from poppies grown in Stark county, Illinois.

Messrs. Hurlbut & Edsall, Chicago, Ill., exhibited a fine collection of crude and powdered drugs and essential oils.

Mr. J. Burrows, Louisville, Ky., exhibited sample of pure ground mustard.

Prof. J. M. Maisch, Philadelphia, exhibited samples of ores from Nevada and Utah, and drugs indigenous to New Mexico. The minerals were furnished by Mr. Alexander A. Green, Aurora, Nev.; the drugs by Mr. Jacob Krummeck, Santa Fé, N. Mex.

Messrs. B. O. & G. C. Wilson, Boston, exhibited a collection of herbs, dried and pressed, free from stems and very nice.

Messrs. Waters & Ricksecker, New York, exhibited a very instructive and valuable cabinet for pharmaceutical examinations, containing, in a small space the size of an ordinary medicine chest, in various compartments, drawers, &c., several hundred specimens of drugs, pharmaceutical preparations, descriptive tables, and well executed illustrations of poisonous medicinal plants, the whole practically and scientifically arranged and deemed of real utility; it is known as Evans' Cabinet of Materia Medica, and was imported by Messrs. Waters & Ricksecker, and presented to the Chicago College of Pharmacy.

Messrs. Wm. H. Peck & Co., New York, exhibited dried, pressed and powdered roots and herbs.

Mr. A. A. Green, Aurora, Nevada, exhibited sample of "Yerba Mansa" or mountain tea.

Messrs. Garrison & Murray, Chicago, exhibited a collection of powdered drugs.

Messrs. Fuller, Finch & Fuller, Chicago, exhibited a fine collection of commercial drugs.

Mr. Henry W. Fuller, Chicago, exhibited annotta-seed and nutmeg in shell, with mace.

Mr. Martin Hastings, Waukegan, Ill., exhibited dried and pressed herbs, roots and a very fine living specimen of *Scutellaria lateriflora*. Other living botanical specimens were exhibited by Dr. A. S. Mansfelde and J. F. Barton, Chicago, and by Mr. H. G. Allen, Rockford, Ill.

Mr. Peter Schuttler, Chicago, exhibited a number of ornamental plants, which formed a very pleasant contrast.

CHEMICALS AND PHARMACEUTICAL PREPARATIONS.

Messrs. Powers & Weightman, Philadelphia, exhibited a variety of chemicals, numbering two hundred and twenty-five specimens, prominent among which was sulphate of morphia in square masses, filling a glass shade sixteen inches in diameter and thirty-two inches high, the whole valued at over eight hundred dollars; other large glass hemispheres contained the cinchona alkaloids. Nearly every article manufactured in their extensive laboratory was represented in the display, and all were of such uniform excellence that particular mention is unnecessary.

Messrs. L. Martin & Co., Philadelphia and New York, exhibited an assortment of fine chemicals, among which chemically pure mineral acids were prominent. Acetic acid, U. S. P., free from empyreumatic odor and equal to the best English, also glacial acetic acid, a sample of ammonio-citrate of bismuth, and another of crystals of strychnia, were especially fine.

Messrs. Gehe & Co., Dresden, Germany, exhibited a collection of fine chemicals, many of which were quite rare. We note as particularly fine in appearance, tannic acid, very light and perfectly soluble in water, chloral hydrate, a new anæsthetic, veratria, valerianate of quinia, difficultly crystallizable, caffeina, cantharidin, kousseine, now very rarely met with, and choleidate of soda, the principal constituent of ox-bile.

The above were exhibited through Dr. Frederick Hoffmann, New York.

Messrs. G. Mallinckrodt & Co., St. Louis, Mo., exhibited two

hundred packages from stock, among which chemically pure glacial phosphoric acid in beautiful transparent masses was most noteworthy; chloroform, ether, granular acetate of potassa, various salts of iron, of hypophosphorous and of valerianic acid, also mercurial preparations, appeared to be of good quality.

Mr. W. J. M. Gordon, Cincinnati, exhibited specimens of pure glycerine, resinoids and chemicals. A large number of other specimens, intended for exhibition by Mr. Gordon, were destroyed by fire a few months ago, and could not be replaced.

Messrs. L. & J. W. Feuchtwanger, New York, exhibited specimens of silicate of soda, hydrofluoric acid and a number of crude minerals.

Mr. F. Sarg, Vienna, Austria, exhibited through Messrs. Fuller, Finch & Fuller, Chicago, samples of chemically pure distilled glycerin.

Mr. Henry Bower, Philadelphia, exhibited pure inodorous glycerine.

Messrs. Rosengarten & Sons, Philadelphia, exhibited more than forty specimens, among which the sulphates of quinia and morphia, salts of iron, bromide of potassium and permanganate of potassa, the latter in large crystals, also strychnia and granular chloride of zinc, were especially noticeable.

Messrs. Howell & Onderdonk, New York, exhibited a fine specimen of ammonio-citrate of bismuth, also tannate, citrate and liquor of bismuth, ammonio-citrate of iron, citrate of iron and strychnia, and a number of other pharmaceutical chemicals.

Saginaw Bay Salt Company, Saginaw, Mich., exhibited samples of the different grades of salt.

Messrs. Mahla & Chappel, Chicago, exhibited specimens of the various salts of iron, mineral acids, chloroform, ether and mercurial ointment.

Mr. E. H. Sargent, Chicago, exhibited fine crystals of urea, nitrate of urea, acetate of zinc chemically pure, phosphates of wheat, solution of peroxide of hydrogen, and other chemicals, also fluid extracts and a variety of other pharmaceutical preparations.

Mr. H. G. D'Evers, Chicago, exhibited about forty specimens of chemicals, most of which were very fine in appearance, and some of them quite rare, a complete set of chemical reagents for qualitative analysis as required by Fresenius, also fluid extracts prepared by fractional percolation and without heat. The above collection is highly creditable to Mr. D'Evers, and it is hoped that his example will be followed by other pharmacists.

Mr. C. Gilbert Wheeler, Chicago, exhibited a collection of chemicals manufactured in his laboratory, many of which are quite rare. We note the following: peroxide of hydrogen in aqueous solution, chloride of benzoyl, perchloride of phosphorus, nitrite of silver, sulphocyanide of ammonium, borate and chromate of manganese, perchlorate of potassium, seleniate of copper in large crystals, molybdic acid in crystals and fused, niobic, tantallic, uric, hippuric, cyanuric, parabanic and theobenzoic acids, thoria, (oxide of thorium) urate and thionurate of ammonium, allantoin, acetamide, palmitate and malate of lime, oxalate of aniline and hydrochlorate of turpentine, (artificial camphor).

Messrs. Stein, Hirsh & Co., Chicago, exhibited specimens of corn-starch, dextrine, glycerine, carbolic acid, blood albumen and glucose.

Mr. S. Mason McCollin, Philadelphia, exhibited machine spread plasters.

Messrs. Milhau & Son, New York, exhibited imported mineral waters in jugs, also Liebig's extract of meat, Cauhapee's gelatine coated pills of the U. S. P., also cod liver and castor oils.

Messrs. Etienne Roque & Co., Paris, France, exhibited through Messrs. Fuller, Finch & Fuller, Chicago, a collection of rare and very fine chemicals.

Mr. Enno Sander, St. Louis, exhibited a large collection of fluid extracts, alkaloids, resinoids, and other pharmaceuticals.

Prof. Edward Parrish, Philadelphia, exhibited bimeconate of morphia, pepsin, and Squire's granular preparations.

Messrs. Bullock & Crenshaw, Philadelphia, exhibited a very large collection of sugar-coated pills and granules, which were smooth, round, and uniform in size.

Messrs. Henshaw & Brigham, Boston, exhibited crystals of nitrate of soda and nitrate of potassa, so large that not less than two months time was occupied in their crystallization. They were displayed in an elegant silver-mounted show case. A sample of American isinglass, manufactured by *Messrs. Gott and Giles*, Rockport, Mass., and a sample of Irish moss was also exhibited by this firm.

Mr. Wm. Neergaard, New York, exhibited an assortment of alkaloids, with list giving name of discoverer, date of discovery and chemical formula.

Mr. C. H. Needles, Philadelphia, exhibited an assortment of plasters and troches.

Messrs. Wm. S. Merrell & Co., Cincinnati, exhibited fluid extracts, resinoids, herbs, sugar-coated pills and powdered drugs.

Messrs. Henry Thayer & Co., Cambridgeport, Mass., exhibited a very large collection of medicinal solid and fluid extracts, resinoids, and sugar-coated pills.

Messrs. Hance Brothers and White, Philadelphia, exhibited medicinal fluid and solid extracts, sugar-coated pills and granules, spread plasters, fruit juices, essences and resinoids.

Messrs. Mellor & Rittenhouse, Philadelphia, exhibited medicinal solid and fluid extracts, plasters, sugar-coated pills, &c.

University of Michigan, Ann Arbor, Mich., exhibiting samples representing, in part, the work of each student in the department of pharmaceutical chemistry.

Messrs. Garrison & Murray, Chicago, exhibited Warner's sugar-coated pills, and B. J. Crew's mustard plasters.

Mr. Jas. R. Mercein, Jersey City, N. J., exhibited about forty samples of fluid extracts of good quality.

Messrs. Tourtelot Brothers, Chicago, exhibited extract of beef and meat biscuit.

Mr. John E. Siebel, Chicago, exhibited dialized iron.

Mr. Adolphus Glanz, New York, exhibited Texan Liebig's extract of meat, manufactured by Harras and Schrade, Clinton, De Witt county, Texas, which is said to be a superior article, and is without doubt as represented.

American Vintage Co., New York, exhibited fine samples of California wines and brandy.

Messrs. Perkins Stern & Co., Chicago, exhibited numerous samples of California wines and brandy.

Messrs. Wahl Brothers, Chicago, exhibited samples of glue.

Messrs. H. A. Stone & Co., Chicago, exhibited flavoring extracts.

DRUGGISTS SUNDRIES, INSTRUMENTS AND APPARATUS.

Messrs. E. Coudray & Co., Paris, France, exhibited, through Messrs. Fuller, Finch & Fuller, Chicago, a very nice collection of perfumes, cosmetiques and soaps. Messrs. Roger & Gallet, Paris, France, exhibited, through Messrs. Fuller, Finch & Fuller, Chicago, perfumery and soaps, an extended line of elegant samples displayed in the neatly made trays in which they were forwarded for this exhibition.

Mr. Henry De Marson, Paris, France, exhibited perfumery and soaps, a varied and tastefully arranged collection.

Mr. Antoine Chiris, Grasse, France, exhibited through Messrs. Fuller, Finch & Fuller, Chicago, superior handkerchief extracts, essential oils, orange flower and rose waters, prepared from the crop of 1869 for exhibition at the meeting in Chicago.

Mr. A. B. Taylor, Philadelphia, exhibited samples of highly perfumed toilet waters.

Messrs. Colgate & Co., New York, exhibited fine toilet soaps carefully manufactured and highly perfumed. Prof. P. W. Bedford, New York, exhibited samples of hand and machine cut corks, the former being of foreign, and the latter of domestic manufacture.

Mr. S. Mason McCollin, Philadelphia, exhibited samples of gutta percha pessaries.

Messrs. Hance Brothers & White, Philadelphia, exhibited Hance's non-wasting percolating and filtering apparatus, six specimens, embracing the various sizes in glass and tin, including one in practical operation. Your committee deem this a very useful invention. A drug mill of new pattern and simple con-

struction was also exhibited, which appears to be an improvement on those formerly in use.

Mr. E. Wheeler, London, England, exhibited one aneroid barometer, watch pattern, in silver case, which is of exceedingly delicate workmanship. A microscope and fine collection of objects was also exhibited. A large collection of thermometers, hydrometers, and barometers, shipped by Mr. Wheeler, arrived too late for the exhibition.

Mr. W. H. Bullock, Chicago, exhibited one large monocular microscope with bulls-eye condenser and glass cage, the workmanship of which compares favorably with that of foreign manufacture.

Mr. H. Palmer, Evanston, Ill., exhibited one electro-voltaic battery of simple construction, convenient for professional and private use.

Messrs. Hurlbut & Edsall, Chicago, exhibited four sizes Beranger's balances.

Messrs. Snowden & Brothers, Philadelphia, exhibited two large show cases filled with the various instruments and appliances for surgical uses, consisting in part of pocket cases, of instruments and vials, hypodermic syringes, axilla thermometers, elastic stockings, suspensories and trusses, making a very elegant display.

Messrs. Bliss & Sharp, Chicago, exhibited a fine collection of surgical instruments, manufactured by Tieman & Co., New York, including amputating, dissecting and trephining cases, also eye and ear instruments, all of which are of fine workmanship.

Messrs. H. M. Wilmarth & Brother, Chicago, exhibited McGlensy's patent gas furnace, an adaptation of the Bunsen burner to a stand fitted for pharmaceutical use, a very convenient article.

Messrs. F. M. & W. A. Shepard, Chicago, exhibited a full line of hard and soft rubber goods required by the profession and the public, also samples of crude gutta percha, crude india rubber, and juice as obtained from the india rubber tree in Brazil.

Messrs. B. H. Sleeper & Co., Philadelphia, exhibited a variety of neat and attractive glass labels for bottles and drawers, a set

of Hodgson's patent graduates, which are of better quality than those heretofore manufactured, a variety of nursing bottles, tin cans for herbs, &c. A section of cornice, shelving and drawers with labeled glassware, made an attractive display.

Mr. H. Troemner, Philadelphia, exhibited three counter scales, Hoffman's patent, and three of Roberwal's patent with weights in block.

Prof. E. Parrish, Philadelphia, exhibited improved gas furnace, copper pharmaceutical still, tin oil measure, and four sizes suppository and camphor ice moulds.

Prof. W. Procter, Philadelphia, exhibited a model of a pharmaceutical still, the invention of Professor Curtman of St. Louis, Mo.

Mr. W. B. Chapman, Cincinnati, exhibited a set of suppository moulds, samples of suppositories and of oil of peach kernels.

Messrs. E. Burton & Co., Annapolis, Md., exhibited a new and ingenious contrivance for taking corks from bottles.

Messrs. Fuller, Finch & Fuller, Chicago, Ill., exhibited tincture presses, chamois skins, a variety of sponges, scales, prescription and counter, Beranger's patent, retort stands and gas furnace.

Messrs. Bullock & Crenshaw, Philadelphia, exhibited Bunsen's blast gas lamp, coin test bottle, and a collection of chemical glass-ware in miniature, graduating powder folder, screw pattern, urinometer and jar in case convenient for the pocket, modification of Davy's safety lamp, Liebig's condenser with stand and suppository moulds.

Messrs. S. Maw & Son, London, England, exhibited a magnificent case of fancy goods, embracing hair, nail and tooth brushes of superior quality and workmanship, Maw's double action brass syringe, telescope enema, ear speculum and lens, set of Brodie's catheters, Meadow's vaginal and Hewitt's vaginal speculums, Labordette's throat speculum, india rubber bulb syringes, bougies, catheters, a large variety of cut glass punctants and vinaigrettes, chest protectors, sponge bags, bathing caps, elastic stockings, trusses, a very useful gas-burning plaster spatula, suppository mould, screw powder folder, two marble

table pill machines, dispensing gum bottle, india rubber air and water cushions of various patterns, magnetic machine with appliances for spine, teeth, throat, ear, uterus, bladder and feet; a wing folding medicine chest of Spanish mahogany, containing sixty-four bottles and all the apparatus used in dispensing; wedgwood mortars, funnels, bed pan, urinals, evaporating dishes, infusion jar and a Normandy gas furnace; also an assortment of graduates and decorated jars, all of which should be seen to be appreciated.

The above goods were exhibited through Messrs. Fuller, Finch & Fuller.

New England Glass Co., Boston, exhibited about one hundred and fifty specimens, embracing every conceivable form of druggists glass-ware, which was displayed in a manner evincing real taste. The quality of the glass-ware is unsurpassed by that of any firm in this country.

Mr. T. S. Wiegand, Philadelphia, exhibited a scale for chemists and apothecaries, which is readily adjustable to the nicety of the 150th of a grain; the beam is completely secluded from dust or air, and a glass table allows the contents of drawers beneath to be clearly seen.

Mr. J. B. Seeley, Philadelphia, exhibited, through Messrs. Fuller, Finch & Fuller, Chicago, Ill., an assortment of rubber trusses.

Mr. E. C. Penfield, Philadelphia, exhibited a case of trusses, suspensories, supporters, shoulder braces and elastic stockings of elegant appearance and workmanship.

Mattson Syringe Co., Philadelphia, exhibited samples of syringes.

Mr. S. E. G. Rawson, Saratoga Springs, New York, exhibited, through Messrs. Fuller, Finch & Fuller, Chicago, Ill., samples of suspensory bandages.

Mr. A. Theo. Moith, Fishkill, New York, exhibited a patent syphon arrangement of india rubber tubes for drawing acid from carboys, which appears to be a practical, ingenious and valuable invention.

Mr. Henry Biroth, Chicago, Ill., exhibited a large case of

chemical apparatus, consisting of specific gravity bottles, Woulf's bottles, graduated burettes, flasks, retorts, beakers, hydrometers, alcoholometers, urinometers and Liebig's condensers; also apparatus for fractional distillation, making a very comprehensive collection.

Messrs. Holden & McClelland, Chicago, Ill., exhibited druggists' glass-ware in variety; also labelled ware, glass labels and drawer pulls.

Mr. A. G. Wilson, Chicago, Ill., exhibited a patent oil can with metric faucet, apparently very useful.

SODA AND MINERAL WATER APPARATUS.

Mr. John Matthews, New York, exhibited a "Frost King" draught apparatus of white statuary marble, which for elegance of design and beauty of finish is unsurpassed. The combination of glass coolers and syrup tanks, and the absence of metallic syrup faucets are improvements looking to greater purity in the waters dispensed; an iron generator and porcelain-lined fountains were also exhibited.

Mr. E. Bigelow, Springfield, Mass., exhibited two specimens of white and one of Lisbon marble draught apparatus, all of which are worthy of the reputation of the manufacturer. The syrup tanks are of white porcelain, and are a decided improvement over the old metal tanks.

Messrs. Hurlbut & Edsall, Chicago, Ill., exhibited a "Triumph" draught apparatus, manufactured by A. J. Morse & Son, Boston; also copper fountains lined with seamless block tin, the latter so heavy as to be apparently indestructible.

Mr. E. Walton Russell, Baltimore, Md., exhibited an automatic tumbler washer; useful, and certainly very ornamental.

BOOKS.

Mr. L. W. Schmidt, New York, exhibited foreign and American books on Pharmacy and the collateral sciences, some of them rare and valuable works.

Messrs. S. C. Griggs & Co., Chicago, Ill., exhibited a fine collection of pharmaceutical and scientific books, embracing many very valuable works.

Messrs. Fuller, Finch & Fuller, Chicago, Ill., exhibited drug-

gist's ready reference price and stock book on a large scale ; also one for the pocket, the latter by Mr. Raboteau, of St. Louis.

SUNDRIES.

Messrs. Hovey & Heffron, Chicago, Ill., exhibited a large collection of vegetable and flower seeds, seed vessels, glass shades, fancy and ornamental goods ; also materials and colors for making wax flowers.

Mr. Daniel Barclay, Chicago, Ill., exhibited ten show cases of his manufacture, which were very elegant, and did material service in protecting the goods displayed from dust.

PAINTS AND COLORS.

Messrs. Harrison & Brothers, Philadelphia, exhibited a very creditable collection of fine paints and colors, dry and in oil.

Western White Lead Co., Chicago, exhibited white lead in kegs and pails and dry corroded lead.

Mr. D. B. Shipman, Chicago, exhibited pure white lead in kegs and pails, with specimens of corroded lead washed and dried ready for grinding.

Your Committee, in presenting this report, do not pretend to do full justice to the subject ; even an attempt at this would of itself fill a large volume. Their aim has rather been to do comparative justice to all, mentioning specifically only such articles as were deemed worthy of such notice.

They would respectfully suggest that, at the future meetings of the Association, one entire session should be devoted to a critical inspection of all articles exhibited, the Association adjourning in a body to the exhibition room for that purpose ; the above suggestion is made for two reasons :

First, the meetings are of so much importance and occupy so much time, that some, at least, of those most competent to examine critically the display, have not more than time to look into the exhibition room, and are thus deprived of the pleasure and profit consequent thereupon.

Secondly, they deem it due to those who spend so much valuable time and no little money to make these exhibitions what they are, that they should have the satisfaction of knowing that

their efforts met with more appreciation than a mere mention in the Report of the Committee on Specimens.

The Committee would also suggest that every facility be extended exhibitors for disposing of the articles displayed at private sale.

THOS. WHITFIELD,
Chairman of Committee.

PAUL BALLUF,
N. G. BARTLETT,

WM. H. CRAWFORD,
HENRY J. MENNINGER.

REPORT OF THE COMMITTEE ON THE PHARMACOPŒIA.*

BY EDWARD R. SQUIBB, M.D., CHAIRMAN.

At the Eleventh Annual Meeting of the Association, held in Boston, in Sept., 1863, the following preamble and resolution were adopted :

" *Whereas*, it is desirable that during the interval between the decennial revisions of the Pharmacopœia there may be some repository in this Association for the information and knowledge resulting from prolonged practical use of the official formulas ; and some members whose particular duty it may be to observe during this interval what additions or omissions might be usefully made in the next ensuing revision, therefore,

Resolved, That a permanent Committee on the Pharmacopœia, to consist of three members, be appointed to keep a current commentary upon the Pharmacopœia, and a record of all useful criticisms and suggestions that may be made upon it while in practical use, with a direct view to its future revision ; and that the Chairman of this Committee may, at his option, report an abstract of such information as he may gain, at the annual meetings of the Association. And, finally, that members generally be requested to communicate to the Chairman any information or suggestions bearing upon the duties of the Committee."

*At the fifth session, the American Pharmaceutical Association adopted the following resolution :

Moved by Dr. Squibb, that in the reference of his report on the Pharmacopœia to the Executive Committee for publication in the Proceedings, the report be prefaced by the distinct statement that the Association, in publishing this report, does not endorse the judgment of the reporter in his recommendation to dismiss so many articles.

In pursuance of this resolution the President appointed E. R. Squibb, Wm. Procter, Jr., and Alfred B. Taylor to constitute this Committee. See Proc. Amer. Pharm. Asso. for 1863, pp. 42, et seq.

At the Thirteenth Annual Meeting, held in Boston in 1865, the Chairman offered a paper upon economy in alcohol, as applied to the extracts and fluid extracts of the Pharmacopœia, which is published in the Proceedings of that year, at pp. 201 et seq.

At the Fourteenth Annual Meeting, held at Detroit in 1866, your reporter offered, in continuation, a critical report on the official process for fluid extract of buchu, which is published in the Proceedings of that year at pp. 81 et seq.

At the Fifteenth Annual Meeting, held in New York in 1867, your reporter offered another paper in continuation, upon repercolation as a means of economizing alcohol in the exhaustion of drugs, which is published in the Proceedings of that year at pp. 391 et seq.

At the Sixteenth Annual Meeting, held in Philadelphia in 1868, the Chairman made a report on behalf of the Committee, which is published in the Proceedings of 1868 at pp. 25 and 26. In this report it was suggested, and the suggestion was adopted by the Association, that at this meeting each member of this Committee should present a simple critical review of the Pharmacopœia in the light of his past experience, each making mere points of approval or objection as his experience and judgment might indicate.

It now, therefore, becomes the duty of your reporter, on his own behalf, to offer the following review of the Pharmacopœia, based upon his own practice and judgment. To give the reasons and arguments for the changes suggested would involve too much time and labor, and would extend this report beyond proper limits. The utmost that can be undertaken is to give some prominent reason or argument, whenever this can be done in very few words.

The first suggestion to be made is whether a revision, or at least a partial revision, of the Pharmacopœia should not be made at shorter intervals than ten years. Good reasons are so numer-

ous on both sides of this question that it may be difficult to decide it aright, but your reporter inclines to the belief that at least a partial revision should be more frequently made.

The time is approaching, if not now come, when it will be wise to provide for the expenses incident to the revision of the Pharmacopœia. It would be comparatively easy to defray the expenses of the Conventions by assessment upon the bodies represented in it. But the much heavier expenses of the Committee of Final Revision and Publication are not so easily met. If, as in the past, the members of that committee who are relied on to perform the labor are named from one locality, there is danger that the Pharmacopœia may be unduly local in its character and influence; whilst if members go from a distance to attend these meetings, the loss of time and the expense are too great to be contributed by those best qualified to do the duty. The authors of any copyright Commentary upon the Pharmacopœia are the only persons who get any adequate compensation for their labors in connection with it, and such need not necessarily serve in the committee at all. In regard to the future of the Pharmacopœia this subject deserves earnest attention.

It is suggested that the general principles and plan, and some of the leading special points in the construction and management of the Pharmacopœia should be more freely discussed and determined by the Convention itself, and that an accurate phonographic report of the proceedings of the Convention be taken and published.

The preliminary notices of the Pharmacopœia might, in the judgment of your reporter, be extended with utility.

The division of the Materia Medica into a primary and secondary list is, to say the least, of doubtful utility. And if it be not useful it is an unnecessary complication.

The class of preparations contains many articles that should be transferred to the Materia Medica.

The tables of the Pharmacopœia could be increased in number with great utility, so as to include tables of doses, of poisons and antidotes, of reagents and their prominent reactions, of solubilities, etc., unless it should be thought better to give this kind of information where it can be done more perfectly, that is, in connection with the substances, in the body of the work.

The first heading or division of the Pharmacopœia is "Preliminary Notices," and the first sub-heading or sub-division is "Weights and Measures." It is suggested that the tables of avoirdupois weights, of imperial measures, and of the metrical system of weights and measures, with compound tables showing the relative value of the various denominations of each one in every other, be added here, and that care should be taken to give that prominence to the metrical system which is due to it as the best of all, and as that which is rapidly advancing toward universal application.

A more mature consideration of the subject has confirmed your reporter in the opinion, strongly advocated ten years ago, that it would be wise and proper to discard measures entirely from the usage of the Pharmacopœia, substituting weights throughout. And then, either for permanency, or as a transition stage towards the adoption of the metrical system, to use the method of expressing quantities in parts by weight; or, expressing the proportional relation of ingredients rather than arbitrary quantities, leaving it to the choice or need, or other circumstances of the operation, to determine not only the kind of weights to be used, but also the scale upon which the operation is to be performed. Take the present formula for Compound Fluid Extract of Sarsaparilla, as being about as complex an example as could be selected.

Take of Sarsaparilla, in moderately fine powder, sixteen troyounces. 64 parts.

Liquorice Root, in moderately fine powder,
Bark of Sassafrass Root, in moderately fine
powder, each two troyounces. 8 parts.

Mezereon, in moderately fine powder, three
hundred and sixty grains. 3 parts.

Sugar, twelve troyounces. 48 parts.

Diluted Alcohol a sufficient quantity.

Mix the powders, and having moistened the mixture with ten fluidounces, 36·166 parts of diluted alcohol, pack it firmly in a cylindrical percolator, and gradually pour upon it diluted alcohol until four pints, 236·8 parts of tincture have been obtained. Evaporate this by means of a water bath to twelve fluidounces,

48 parts ; then add the sugar, and continue the evaporation until the liquid is reduced to the measure of eighteen fluidounces, and strain while hot ; or, to the weight of 81·424 parts, and strain while hot.

The fractions of parts are stated merely to be accurately equivalent, and of course would be omitted in constructing formulas in parts ; and the terms of the formulas would be simplified. If this formula was thus given in parts, the person proposing to use it would, according to his circumstances, translate the term part into a quarter of a troyounce, which would be the scale of the Pharmacopœia ; or into a quarter of an avoirdupois ounce, which would be about 10 per cent. less ; or into an ounce or a pound, or an hundred pounds of either table of weights, and so long as he adhered to the same table throughout, the resulting preparation would always be the same. For the purposes of the Pharmacopœia, it would be better to make the successive proportional quantities 22, 3, 1, 19, 12, 80, 12, and 28 parts, instead of the numbers given, and then the pharmacist, by translating the part into an ounce of whichever table of weights he might possess, would obtain a product about one-third greater. The good reasons for and against this method of stating the formulas was so thoroughly discussed ten years ago, by the writer and others, that it is not necessary to go over the ground again now. The method was then comparatively new and untried. The last revision of the Prussian Pharmacopœia is now an excellent example of it, and well illustrates all its advantages and disadvantages. And when that work is compared with the French Codex, wherein the metrical system is used, it appears to fall little short of this in practical utility. Dorvault, in "L'Officine," regards the two methods as practically almost identical, and it remains to be seen whether the pharmacy of this country is to advance toward the adoption of these progressive steps in knowledge, or wait to be dragged into them by the common currents of events. When two such nations as Great Britain and the United States fail to lend a helping hand, or set themselves in opposition to an advancement long acknowledged and slowly becoming general, their influence is very great, but not irresistible.

Under the subdivision on "Temperature," it is suggested that both Fahrenheit and centigrade degrees be given; and that temperatures be stated in degrees when required, rather than by such terms as "gentle heat." This latter expression is arbitrarily defined to mean any temperature between 90° and 100° . But such expressions as "moderate heat," used at pages 297 and 394, and "regulated heat" at pages 292 and 295, and possibly elsewhere, are not defined.

"SPECIFIC GRAVITY."

The temperature of 60° for specific quantities, is an inconvenient one for pharmaceutical use, and the time and trouble necessary to attain it, often, if not generally, obstructs the practice of this important test of strength and quality. As it is much easier to warm a liquid by applying the warmth of the hand to the vessel containing it than to cool it, it is suggested that specific gravities be given both at $60^{\circ}=16^{\circ}$ C. and at $77^{\circ}=25^{\circ}$ C. This would render it easy to get at intervening temperatures, and would facilitate the practice much, and would be better than the limited table given in the Prussian Pharmacopœia. A specific gravity bottle is shown herewith, by which absolute, not apparent, specific gravities are taken at all usual temperatures from 32° F. $=0^{\circ}$ C. to 77° F. $=25^{\circ}$ C.*

* These specific gravity bottles, of which one of the largest is shown, vary in size from about 100 c.c. to 1000 c.c., the larger giving, of course, the more accurate determinations, because the errors are so diminished. They are ordinary bottles of good shape, selected, first, with regard to the age, to avoid the error of change in capacity by contraction of the glass; and second, with regard to perfection and uniform strength and thickness of glass without unnecessary weight. The bottoms are so ground off on one side that the bottles may stand inclined, and thus prevent the large tube of the stopper from touching the scale beam or wires. A hollow stopper is made to project into the bottle, say half an inch, and on to the top of this is joined a glass tube about 12 centimetres long, with straight or slightly tapering bore of say 3 millimetres diameter at the lower end, and 4 millimetres at the upper end. On to the upper end is joined a piece of a large tube about 9 or 10 centimetres long, and 1 centimetre in diameter, into the upper end of which is ground a small glass stopper. The large hollow compound stopper thus constructed is accurately ground into the bottle by repeated regrinding and trial, until when the whole apparatus

"SATURATION."

It appears unnecessary now to direct how the point of saturation is to be determined, since the degree of ignorance upon which such a direction is predicated is incompatible with the use of a Pharmacopœia, and would be hopelessly puzzled by the acid and alkaline reactions of many saturated salts. Beside this, it is an inaccurate test in many cases, and in some crystallizations will cause failure.

is filled with common ether, the loss in weight on standing is reduced to a uniform rate of about .03 gram. per hour. The loss with distilled water will then be imperceptible. By a hole drilled in the lower margin of the stopper, a short thermometer, graduated from 0° to 30° C., is suspended by a platina wire. The circumference of the small tube of the stopper is ruled into three columns for graduation. The bottle is filled with distilled water at its maximum density, till the water stands at the lower end of the narrow tube, at which point the graduation commences in the first of the three columns. The bottle and the water are then warmed in a bath 1° at a time, and the marks made for graduation. The first column serves to go up to say 16° . The bottle and contents are then carefully weighed and the tare subtracted, to obtain the first divisor, and this weighing is of course repeated every time the quantity of water in the bottle is diminished, in order to obtain a new divisor. Then a little of the water is removed from the tube by narrow strips of paper, until, while at the same temperature, the level of the surface, or rather the lower limb of the meniscus is on a horizontal level with the starting point of maximum density. This is marked 16° at the lower end of the second column for graduation, and is the starting point for that column of the scale. The bottle and contents are again warmed by immersion in a bath degree by degree, and marked as before, until this second column is completed. More water is removed from the tube at this temperature, as before, and the third column is graduated in the same way. We then have a divisor for each column, just as though there were three bottles of different capacity, one column adapted to each. This makes a convenient and comprehensive bottle, well adapted to very accurate determinations; for when used on a scale sensible to .01 gram. the weighing error is removed to the fifth or sixth decimal place, according to the size of the bottle. The present means of determining specific gravities in common use, are not sufficiently accurate for the present state of knowledge, and in a paper now in course of preparation, the writer hopes to show that we must begin to avoid some of the inaccuracies, both of observation and expression, particularly in the s. g. of liquids. The writer has already gone far enough to show that the classical and commonly accepted observations of Drinkwater for absolute alcohol are probably considerably erroneous.

"STOPPAGE OF BOTTLES."

It is quite as easy, and is less liable to be misconstrued, to direct that bottles are to be glass stoppered when this is necessary, as to direct them to be "well stopped" in the text, and to define in the preliminary notices that this means that they must be closed with glass stoppers.

"PERCOLATION."

The process of percolation differs materially with every drug to which it is applied, and with every menstruum used, and ten years of experience upon every scale has very much modified your reporter's judgment, if it has not increased his knowledge upon the subject. And it is now doubted whether any general or typical directions can be given which will be usefully and safely applicable to any considerable class of medicinal substances. A general explanation of the principles of the process, and of the apparatus and appliances which up to this time have been found most effective and convenient in practice, are necessary to the Pharmacopœia, but the most successful practice of to-day, is not well indicated in the present preliminary notice. Percolation is perhaps the most important process of the pharmacist, and particularly important because under all circumstances even a moderate degree of success requires much knowledge and skill; and because failure so often occurs undetected. Your reporter has so often seen results in his own hands, where all that the Pharmacopœia gave him, and more than this, were carefully and conscientiously applied, which results were so far from what the Pharmacopœia requires and expects, that it leads to the opinion that the present directions are inadequate and delusive in regard to the practical exhaustion of drugs. Honesty of purpose being conceded, a considerable amount of knowledge, skill and experience are as necessary to successful percolation as they are to reading or writing, and while without these it is impossible to render any amount of detailed descriptions effective, yet a moderate amount of detail in each special case will best secure uniformity in good result. It must be impracticable to adapt the Pharmacopœia to any given degree of either ignorance or knowledge in those who are to

apply it, and therefore it does not appear to be wise in those who make it, to reject processes and formulas on account of their complexity and the difficulties which attend their proper application, no more than to reject detailed description of processes on account of their being unnecessary to the educated, or more appropriate to commentaries. The Pharmacopœia must almost necessarily adopt the best means that are known to attain its ends, irrespective, in a great measure, of the amount of knowledge or skill which may be necessary to apply them, since a code or standard which should be reduced to the comprehension of the ignorant of the class to whom it is addressed to-day, would add its influence to the arguments for a further reduction ten years hence. All your reporter's knowledge on the subject of percolation and repercolation are given in the papers which have emanated from this Committee within the past four years, and he suggests that repercolation be adopted in the new revision of the Pharmacopœia.

"FINENESS OF POWDERS."

The direction for fineness of powders would be better given by stating the mesh of the sieve in the body of each formula. What is commonly known as fine powder is that made by "dusting" in the mill called a chaser, and such will commonly pass through bolting cloth of 110 meshes to the linear inch. Such powder is often well adapted to percolation, but in some instances will not percolate at all. As a general rule, however, the finer the powder and the slower the percolation, the easier it is to attain the end, and there are but two or three drugs known to your reporter which can be successfully exhausted in coarse powder.

When to be administered in substance, the extreme fineness of powders which is commonly sought for and prized, is often unnecessary, while the process of powdering is always more or less hurtful. A good iron mortar in a pharmacist's store can and should yield nearly all the powders which are ordinarily dispensed from such a store in prescriptions, and the Pharmacopœia should give its influence against the common practice of buying many drugs in powder for prescription use, chiefly because the true character of such powders can never be known.

"MATERIA MEDICA."

On reaching the consideration of the division of *Materia Medica*, your reporter gives his judgment very decidedly in favor of a *materia medica* list, although the more recent *Pharmacopœias*, with the exception of the French, do not adopt it. It adds much to the convenience and simplicity of the work, and does not obstruct easy reference.

The sub-division into a primary and secondary list is, however, of doubtful utility, since it complicates the list without manifest reason, and obstructs easy reference by making it necessary at times to look over two alphabetical lists. The distinguishing characteristics of the secondary list are, that the articles there found are of secondary importance, or are under probation as liable to be dismissed, or promoted to the primary list, and do not enter into any of the official preparations of the *Pharmacopœia*. None of these characteristics are considered to be incompatible with their enumeration in the primary list, and it is therefore the judgment of your reporter that there should be but one list.

Your reporter has earnestly desired and strongly advocated for many years an entire change, and a great extension of the definitions of the substances composing the *materia medica*, and now approaches the subject as an often told tale, but one which a sense of duty still urges him to tell again. Of what practical use is it to either the physician or pharmacist to define the official *acacia* only as being the concrete juice of *Acacia vera*, and of other species of *acacia*; or to define *rheum* as the root of *Rheum palmatum*, and of other species of *rheum*.

It is now almost certain that the gum *gedda* used to adulterate the finest qualities of gum arabic is a product of some "other species of *acacia*," and it is therefore so far official. And it is well known that our common garden pie plant, which is now so successfully cultivated as an adulterant of powdered rhubarb, is one of the "other species of *rheum*," and therefore, so far as literal definition is concerned, is official. What seems desirable is that the article named should be so defined and described as to leave no doubt as to what is intended as to specific identity, and also to the grade of quality. The *Pharmacopœia* should be

very decisive and arbitrary in this, as well as very plain, leaving no room for any thing short of dishonesty. The characteristics of quality and kind in the official substance should not be given in smaller type, nor in any separate or secondary way, as in the British Pharmacopœia, but with all the prominence and authority that is possible, and in such detail as may correspond to the importance of the substance.

Thus briefly presented, the subject is left for your earnest consideration, and if the plan suggested should seem to be an improvement, let the Association use all its influence with the next Committee of Revision for some change in this respect.

There can be nothing more important to an official list than official authoritative directions and specifications in regard to the collection, preparation and preservation of simple medicinal substances, and therefore your reporter would strongly urge that the *materia medica* list be preceded by such directions. The admirable paragraphs by Dr. Wood upon this subject, with but little correction, as found at page 873, 874 and 875 of the twelfth edition of the U. S. Dispensatory, would form an excellent introduction to the list.

As it is quite inconsistent with the occupations of your reporter to afford the time and labor necessary to take up the substances seriatim, and suggest the desired additions and extensions, the report must be limited to special substances of importance, and to avoid verbiage and save time, the suggestions will be made in the shortest way.

Absinthium and *Acetum*, dismissed as useless.

Acidum Aceticum to be free from empyreuma. Easily ascertained by the odor when saturated, as in making liquor ammoniæ acetatis.

Acidum Chromicum to be free or nearly free from sulphuric acid.

Acidum Citricum and *Acidum Tartaricum* to be colorless and clean and dry, and not to be used in powder for chemical uses, as both are somewhat changed by kiln-drying and the heating and friction of mills.

Acidum Muriatricum. Rarely or never found colorless nor

absolutely free from sulphur compounds, and not necessary to be so for pharmaceutical uses.

Acidum Nitricum rarely or never colorless except when recently heated, and not necessary to be so.

Acidum Sulphuricum. As a practical fact it is impossible to get sulphuric acid in quantities having the s. g. 1·843. Once within the past six years your reporter induced a large manufacturer to make about ten carboys, the s. g. of which was 1·843, but it contained a little lead, which must have increased the s. g. This experiment was attended with so much injury to the platinum apparatus that it was never repeated, and this is the only occasion on which your reporter has ever seen officinal sulphuric acid from the ordinary sources accessible to the druggist and pharmacist. He is of the opinion that it can and should be made by the manufacturer, by care and the use of a different fuel under the stills, at a cost not greater than eight or ten cents per pound, paying three times the usual profit at this price. But from ignorance and want of care in those who use it, and from the plus inaccuracy of common hydrometers when used for sulphuric acid, the demand is too small to warrant manufacturers in producing it. The average of the best commercial acid called "Concentrated, 66° Baumé," has an average s. g. of about 1·835 by a good hydrometer. Whilst the best hydrometers usually mark about 0·002 too high with such liquids, when compared with a good s. g. bottle. By pains and care, and by going direct to the manufacturer with sufficient inducement in price to pay him for the trouble, an acid can always be had which, with the small amount of lead in solution, will have a s. g. of 1·839 or 1·840; and the variation in such acid appears to be more in the proportion of lead than in the true acid strength. It seems fair to infer, therefore, that with such acid, at best, the formulas of the Pharmacopœia are supplied in general use; and as the acid is otherwise of excellent quality and cheap, though very rarely colorless, it would be wise to name a lower s. g. for the officinal acid. The last test given, namely, hydrosulphuric acid, is of no practical use, since the writer has never seen a single specimen of commercial sulphuric acid so free from lead as not to respond affirmatively to a proper application of this test. Nor is it neces-

sary for pharmaceutical uses that it should be entirely free from lead, because, when diluted, the lead is practically all precipitated, and when used strong the lead is either precipitated or insignificant in effect if present only in small proportion. When sulphuric acid which is proper to be considered officinal is added to four times its volume of water, it should give only a faint opalescence. In good acid the precipitate which causes this opalescence is plainly seen only at the bottom of the test tube after standing twenty-four hours. The amount of lead thus indicated is not a serious objection for officinal uses.

Aconiti Folium. The color, odor, taste, and freedom from dirt and foreign plants, at least, should be made a part of the definition of the officinal drug. The same remark applies with equal force to all the leaves of the list, and the definition should be repeated with a detail and precision proportionate to the importance of the substance.

Aconiti Radix. Color, color of fracture, size, soundness, proportion of stalk, cleanness, taste and the impression made by minute portions on the tongue, with a caution in regard to tasting, should all form a part of the officinal definition. A very minute fragment from the broken surface of a root, detached carefully by the front teeth, and chewed there in contact with the tip of the tongue for a moment or two only and then rejected, will not at once, but only after a few moments, develop a tingling numbness of the part of the tongue which was touched by it, and the strength and duration of the impression well indicate the activity of the root. As the impression from one root must pass away before another can be tried, only three or four pieces can be thus tried in a day, and three or four days will be required to judge a sample, but the result is critical and conclusive, and some good test is highly necessary. No sample should be accepted in which one root in three is either inactive or only faintly active. Much caution is necessary, in applying this test, to avoid very disagreeable and even dangerous effects, since the substance is highly poisonous. But with common sense and judgment it is entirely safe, and after a few trials is as easy as it is effective.

Adeps should be white, and free from rancidity and from water. Often has a scorched odor of acrolein, against which it should be guarded.

Alcohol Amylicum is always obtained from spirit during the process of separation and rectification. The crude substance is supplied by rectifiers more than by distillers, and is rarely, if ever, obtained as described. The officinal liquid should be quite colorless, instead of "nearly colorless."

Alcohol Fortius. Drop the word "officinal."

Allium, Althœa and Angustura. Dismissed as being useless. Some of these articles, though not entirely useless, nor unused, are still of so little importance, and so rarely called for in comparison with a multitude of articles which would not be admitted to the list, that consistency, as well as utility, argues for their dismissal.

The three varieties of aloe are greatly in need of well-guarded characteristic definition.

Aurantii Flores should be substituted by orange flower water.

Belladonnæ Radix. It is practically impossible to determine whether any root of belladonna is from a plant more than two years old. The sensible properties of good root, and the proportion of atropia should form part of the definition.

Bismuthum. Bismuth is sometimes adulterated with antimony, and this is easily detected by its precipitation as teroxide during the solution of the mixed metals in nitric acid.

Buchu. Three varieties are common in commerce, and their sources are given in the British Pharm. They are known as "Long," "Long-short" and "Short Buchu." From frequent observation and experience your reporter is of the opinion that there is little difference in the relative medicinal value of these when gathered and kept with equal care, and therefore the definition should aim at the condition rather than at the variety. The "Short" is the lowest in price, and therefore has the largest demand and excites most competition in price: These circumstances react upon the producers, and latterly it is common to see it, not green and pungent in odor, but brownish-yellow, dry, brittle and feeble in taste and smell. The other varieties, from

slow sale, are liable to be deteriorated by age in odor and taste, though retaining their color. As ordinarily put up and kept there are few drugs which deteriorate so rapidly. Hence the definition should embrace freshness as an officinal requisite.

Calx Chlorinata. The standard for this substance is too low, and the test by which its quality is determined should be modified so as to indicate the percentage of available chlorine.

Cardamomum. The aromatic value of cardamom varies very much, and therefore the better varieties should alone be recognised.

Cascarilla, Castoreum and Cataria should be dismissed.

Chenopodium, and Coccus, should be dismissed.

The Cinchonas should be elaborately characterized, and a good simple process of assay should be given.

Cinnamomum. Two varieties so different in all respects should not be associated under one head. If both are to be retained, separate them. One however is sufficient, and that should be the best.

Conium. The unripe fruit should be substituted for the leaf.

Creasotum. As obtained from wood-tar, this substance is dear and comparatively inaccessible, and has not been used to any practical extent for some years. The mixed phenols obtained from coal tar, used under the name of impure carbolic acid, are medicinally identical with it, and much cheaper. The natural mixture can be had in great abundance, is easily defined and characterized, and is all that is needed for any known purpose.

Creta, Dulcamara, Elaterium, Erigeron, Erigeron Canadense, Eupatorium, and Fermentum. Dismissed as useless.

Digitalis. Impossible to know whether leaves accessible are "from plants of the second year's growth."

Ergota. A very large proportion of that used appears to be from other grain than rye. Is such ergot to be regarded as not officinal?

Extractum Cannabis. It does not answer a good purpose to submit the high priced English extracts to the process of purifi-

cation, on account of their cost; and there is no East India extract seen in the markets. It is therefore suggested to introduce the dried tops of *Cannabis sativa*, and give a process for preparing the extract under Preparations.

Gaultheria, *Geranium*, *Granati Fructus Cortex*, *Granati Radicis Cortex*, *Guaiaci Lignum*, *Hæmatoxylon*, *Hedeoma* and *Humulus*. Dismissed as useless, their therapeutic properties being better represented by other officinal substances.

Ipecacuanha. Carthagena Ipecac should be well examined, and either be admitted or distinctly rejected.

Limonis Cortex and *Limonis Succus*, dismissed as useless.

Manganesii Oxidum Nigrum. The standard 66 per cent. is quite too low. A process of testing should be given.

Marrubium, *Matico*, *Matricaria*, *Mentha Piperita*, *Mentha Viridis*, *Mezereum*, *Monarda* and *Myristica*. Dismissed as useless.

Oleum Bergami, *Oleum Bubulum*, *Oleum Cajuputi*, *Oleum Rosæ*, and *Oleum Succini*, dismissed as useless.

Opium. Requires a far better definition, a good simple process for assay, and a maximum limitation, the latter because opium of more than double the ordinary morphia strength has been imported to avoid duties.

Papaver, *Pimenta*, *Pix Burgundica*, *Pix Canadensis* and *Pix Liquida*. Dismissed as useless, or as mere alternatives of better substances.

Plumbi Carbonas. Dismissed as useless.

Potassæ Chloras. Very rarely if ever met with in such a condition that its solution gives no precipitate with nitrate of silver.

Salvia, *Sambucus*, *Santalum* and *Scoparius*. Dismissed as useless.

Sinapis Alba, *Sodæ Sulphas*, *Spiritus Myrciæ*, *Statice*, *Stillingia*, *Styrax*, and *Syrupus Fuscus*. Dismissed as useless.

Terebinthina, *Terebinthina Canadensis*, and *Testa*. Dismissed as useless.

SECONDARY LIST.

In glancing over the articles under this sub-head, with a strong desire to be conservative, and to regard surplusage as among the least of the faults of a pharmacopœia, and also with a strong bias toward the indigenous *Materia Medica*, there are but few which in your reporter's judgment can be usefully retained.

"Mild aromatic tonic and astringent," "simply tonic," "elegant aromatic tonic," "emetic" and "tonic," "emetic and cathartic and sometimes diuretic," "gentle stimulant and diaphoretic," "stimulant diaphoretic," "local irritant," "aromatic stimulant tonic," "diaphoretic and expectorant," are the prominent therapeutic properties ascribed to the articles upon the first page of this list by the best authority in the profession; and the changes in these combinations of properties are rung throughout the list with variation enough to avoid literal repetition. When it is remembered that a prolonged trial, in most instances, has only accumulated this testimony; and when the testimony is cross-examined in the light of modern physiology and pathology, it ceases to be evidence in favor of their being longer retained in the list. The circumstance that the therapeutic effects so far as studied have failed to appear either prominent, new, or characteristic, and are at best but alternative means of accomplishing ends which are better reached by substances which are better known,—or at least better studied. There are, however, some articles in this list which are doubtless entitled to an official position, for reasons which cannot, and need not be enumerated here. These are as follows:—

Calamus. A pure, efficient and agreeable aromatic, which might well be substituted for some of the dearer foreign aromatics.

Cypripedium. One of the best of the indigenous alternatives for valerian.

Gelsemium. A potent definite agent, which stands out in greater prominence the more it is studied and applied. Possessing great individuality, it is undoubtedly deserving of extended investigation.

Gossypii Radix. As an alternative for ergot, but requiring more extended and accurate research.

Hydrastis. As not sufficiently known.

In order not to conceal the apparently radical character of the change proposed for this list, it should be mentioned that the list now contains seventy-five articles, of which it is proposed to dismiss seventy, and to transfer the remaining five to the primary list, which would then be simply The List.

In connection with these somewhat startling propositions for the "massacre of the innocents" of the *Materia Medica* Lists, let it be remembered that there would be two hundred and fifty articles upon the list. Of these about one hundred and five are not strictly therapeutic remedies, but enter into the compounds of the *Pharmacopœia*; such as the acids, metals, metalloids, aromatics, oils, alkalies, etc. This leaves about one hundred and fifty-five simple substances, which, either simple or in various compounds and combinations, would form the *Materia Medica* as applied for therapeutic uses.

Few physicians, including the emergencies of an ordinary life time, use half this number of substances. And the very few who, through knowledge, ignorance or polypharmacy, are most prolific in the resources of their art, will rarely exceed a hundred simple articles in the most extended practice.

PREPARATIONS.

No introduction nor general directions under this head are necessary, for the reason that each preparation should be made entirely complete within itself. A knowledge of the outlines and general principles of natural philosophy, chemistry and botany is all that the *Pharmacopœia* should demand of the physician or pharmacist who undertakes for the first time to apply its formulas and processes.

That is to say, that in the best judgment of your reporter, every process should be given so fully and with such accurate consecutive detail, that a common education with moderate ability would secure a practical degree of uniformity in result. Many of the processes are now but skeleton outlines; and most of them need items of detail which are as indispensable to the required result as the quantities of the ingredients. It seems greatly to be desired that the *Pharmacopœia* should be freed from typical processes, and from comprehensive expressions and

generalizations which require special definitions. The greatest simplicity, plainness and accuracy are often quite inconsistent with the greatest brevity and conciseness of expression ; and as the Pharmacopœia aims for arbitrary authority and inflexibility it must have precision, and this cannot be attained without detail. Hitherto it has been so comparatively useless without a commentary that it is scarcely generally known, and the question still is, shall it remain to be an half explained and therefore more or less ambiguous catalogue ? or shall it run the risk of needing no commentary ? There is an intimation from the surviving author of the best commentary that has ever been given of any Pharmacopœia, see U. S. Dispensatory, p. xi, " that, considering his advanced age, it is hardly probable that he will live to see or at least participate in another revision." This forewarning has not been realized, and we have him still, with his accumulated knowledge and ripened judgment, to guard and guide us by his learning and labor. But we have his forewarning still, and when through advancing age he may choose (as none such ever do choose, but always wear the harness) to retire from the active labor of a most laborious work, where shall we look for such a commentary ? Commentaries we may and doubtless will have, but if the opportunity be afforded they will be laws unto themselves, and their constructions of ambiguous or indefinite expressions may vary, with confusion and debasement of standard as an inevitable result.

Without then attempting what might be the useless labor of revising these processes which appear to need it, according to the unsafe views or practice of a single individual, your reporter will simply aim at pointing out those features of the processes which are most ambiguous, or which are mistakes in themselves, or lead to such in their results. The time and labor necessary for modifying these processes, and giving them what is believed to be the requisite elaboration and detail, is not avoided nor withheld from any other motive than that of its possible and probable inutility. Ten years ago your reporter urged many of these same views ; and subsequently, when acting as a member of the Committee of Final Revision and Publication, his advocating some of them cost the Committee

much valuable time and labor, and probably seriously delayed the publication of the work without proportionate advantage. Time becomes very sensibly of more value to us as we grow older by these ten year stages, and it behooves us at each stage to see that it is better spent.

The paragraphs of characteristics and tests which are supplementary to the processes require as much extension and elaboration as do the processes themselves.

Many of the preparations could be wisely transferred to the *Materia Medica* List, not only because they rarely are or need be made by the pharmacist, but also because they cannot be properly or safely so made, and because the time and labor at his disposal are insufficient for the more simple processes which never should be given up to the manufacturer or druggist. The processes alluded to, such as those for benzoic, tannic and valerianic acids, ether, the chlorides and oxide of mercury, etc., as they stand, appear simple and easy, and even with any proper elaboration would appear comparatively so, yet they are only attractive to the novice in pharmacy, and tempt him to risk his own life and the lives of others, by a simplicity which is apparent only, and, by being authoritatively placed in a category of more simple processes which he is required to practice. It is quite inconsistent in the *Pharmacopœia* to deny place to assayed preparations of opium, aconite, etc., on the ground of complexity, and yet retain processes for the alkaloids of these drugs. And, in the presence of such processes as that for dilute hydrocyanic acid, the antimonials, the preparations of iron, and even compound extract of colocynth and ointment of the nitrate of mercury, what shall be said of the argument against repercolation on account of its complexity. It is really very difficult to know where to draw the line between processes appropriate to practical pharmacy and those which are not; but it must be drawn somewhere by the authority of the *Pharmacopœia*, and to do this with the least practicable inconsistency is what should be aimed at. Hypercriticism never ends, and can neither be well defined nor avoided, but to refuse logical inferences, and resist reasonable deductions and conclusions on account of this, is not wise. With these generalizations the list of preparations may now be briefly reviewed.

ACETUM COLCHICI.

This preparation, during many years past, appears to be superfluous, if not badly contrived, on therapeutic grounds. It should be dismissed.

ACETUM DESTILLATUM

Possesses no known or claimed advantages over dilute acetic acid, and is only offered as an alternative or substitute. This, when the acid is so abundant, cheap and generally good, is regarded as unnecessary.

ACETUM LOBELIÆ.

Some years ago it was hoped and expected that lobelia would, to a useful extent, take the place of ipecacuanha and squill. It has now been long and thoroughly tried, if not much abused, and has pretty nearly disappeared from the current literature of the professions of medicine and pharmacy. The usage of the time is therefore against it, and although it might not be wise to exclude it entirely for fear that its excessive use may have temporarily damaged a really good character; and as this is the only official preparation of it remaining, and probably the best that can be devised at present, it should be retained, but the alternative process by maceration, here and elsewhere, should be dropped as being imperfect and unnecessary.

ACETUM OPII.

The practice of returning a percolate to the percolater is erroneous and properly obsolete. A cloudy percolate is always evidence of mismanagement, and should not be officinally recognized.

ACETUM SCILLÆ.

An accidental error in this process, as given, renders it impracticable. This is corrected in the U. S. Dispensatory, where also a fact is mentioned which was before unknown to your reporter, and unsuspected. If vinegar of squill does deteriorate by keeping, the plan of making it when wanted as a part of the process for the syrup into which it enters should be adopted, as in the British Pharmacopœia.

ACIDUM BENZOICUM.

Transferred to the Materia Medica List, with proper definition to exclude both the so-called German acid, and hippuric acid.

ACIDUM HYDRIODICUM DILUTUM.

The officinal process is very difficult and troublesome, almost to impracticability, on account of the sulphur being precipitated around and enclosing portions of the iodine, and in proportion as this occurs the preparation is deficient in strength. Besides, the process is not well adapted to pharmaceutic practice, on account of the effect and odor of sulphuretted hydrogen about a store or store laboratory. The chief objection to it is, however, that there is a much more neat, cleanly and simple process, namely, that of Dr. Buchanan, of Glasgow. This process was examined by a member of the Association, Mr. John A. Dunn, of Brooklyn, who reported a good formula and process to the annual meeting of last year. His paper may be found in the Proceedings of last year, at page 383. Strength should be stated.

ACIDUM HYDROCYANICUM DILUTUM.

The officinal acid loses strength on exposure to air, so that in weighing off the 100 grains for testing the loss is sufficient, and is so variable as to render the method given practically inaccurate.

ACIDUM PHOSPHORICUM DILUTUM.

When made from glacial acid, as is most common, it often has a pink color, and almost invariably gives a precipitate with sulphuretted hydrogen. It should therefore always be treated with this reagent. The strength should be stated.

ACIDUM SULPHURICUM AROMATICUM.

The process fails to direct the powders to be moistened for packing, and without that they cannot be properly percolated. On mixing the acid mixture with the percolate a bulky precipitate occurs within a month. The old Edinburgh plan of percolating the powder with a mixture of the acid with the whole of the alcohol is better. The strength in monohydrated sulphuric acid should be stated.

ACIDUM SULPHUROSUM.

The sentence commencing with the words "connect the mat-trass" is badly constructed, and literally followed defeats the process. The strength should be stated.

ACIDUM VALERIANICUM.

There are at least two considerable errors in this process, one of which defeats the object. See a paper on the subject by a member of the Association, Mr. F. C. Mussgiller, in the Proceedings for 1868, page 396.

ACONITIA, ATROPIA, STRYCHNIA, AND VERATRIA.

The processes for these alkaloids are given with a precision, accuracy and detail, which leaves little to be desired. They are more practically and more effectively presented to the pharmacist than any of the formulas of the Pharmacopœia, and it is to be regretted that they are among the least useful, because so rarely practised. The quantity of animal charcoal, where this is used, should be definitely prescribed, because it is so very common to use it in excess, and thus diminish the yield of alkaloid. Whether these processes are the best at this time, your reporter does not know.

Under present circumstances, it seems probable that these alkaloids might be wisely transferred to the Materia Medica list, if properly described and guarded. They would be about as often made by the pharmacist then as now, whilst the operator would be left to take the most recent process, or the one best adapted to his peculiar facilities. What the Pharmacopœia attempts now is only to select the best processes of the ten years which are past, and give these in less detail and with less elaboration than they are given in the sources from whence they are taken. But it also gives to the processes selected an authority and sanction very useful, and often much needed. In the judgment of your reporter this is an open question.

ÆTHER AND ÆTHER FORTIOR.

These preparations should both be transferred to the Materia Medica List, or else the æther fortior should be thus transferred

with very careful description and guarding, and the æther be dropped altogether. The present æther fortior would then become simply æther : and where alcoholic ether is required for pharmaceutic uses it should be definitely diluted at the time. The present arrangement was adopted chiefly upon the advice and experience of your reporter, and he may therefore freely say that it is a very bad one. The preparation of ether should never be undertaken by the pharmacist, and never can be undertaken without nullifying his insurance policy. Beside which, without special adaptation of apparatus it is dangerous, not only to himself, but which is of much more importance, dangerous to all who are casually near and not interested. If this be true, the Pharmacopœia is not justified in prescribing that it either shall or may be done by authority.

In the next place it rarely, if ever, is done by the pharmacist, and can rarely be done by him either properly or economically ; whilst with proper and easy discrimination it can always be had of good quality in the common markets, at prices not out of proportion to its strength and cleanness. It is about as easy for the manufacturer to produce the present æther fortior as to produce ether of inferior strength and purity, and if he could get an equal or proportionate profit he would as willingly make it, so that it would be really not only better for the pharmacist to create a demand for the stronger ether and dilute it himself, but would be cheaper in the end. The present officinal æther contains from 27 to 30 per cent. of alcohol and water, beside containing objectionable hydro-carbons. The æther fortior contains from five to seven per cent. of alcohol, and is practically, though not chemically, free from the objectionable hydro-carbons. If therefore the ether for pharmaceutical purposes should be made by diluting the stronger ether, it would be of much better and more uniform quality.

CHLOROFORMUM PURIFICATUM.

The word nearly should be introduced after "distil" in the direction to "distil to dryness." And the words "when mixed with an equal volume" should read "when shaken with an equal volume." The less critical but more practical test of quality,

which consists in observing the odor of the last portions of chloroform under examination, as it evaporates from bibulous paper, should be given.

OLEUM ÆTHEREUM.

A necessary direction to wash the oil with a dilute solution of carbonate of soda (one ounce to the pint of water) before mixing with the ether, is unaccountably omitted from this process.

The characteristics which belong to it, as the heavy oil of wine, in contradistinction from light oil of wine, should be given, as these paragraphs are often referred to in examination of substances purchased.

ALUMEN EXSICCATUM.

It is useless to direct the alum to be taken in coarse powder, since it fuses at once on being warmed; and it is practically impossible to make an uniform nice preparation without powdering it when dry, previous to the final heating. The lumps become too much dehydrated and insoluble on the outside, and too little dehydrated within. The temperature directed is unnecessarily high, and without great care is hurtful.

There should be a paragraph of characteristics and tests, as the preparation is very liable to be badly made.

ALUMINÆ SULPHAS

Should have a paragraph of characteristics and tests if it be retained, but it is regarded by your reporter as a useless preparation.

AMMONIÆ VALERIANAS.

The wording of this process, in order to be compact and brief, is so unusual and so parenthetical as to be not only clumsy, but ambiguous as well. The acid must be kept warm or the salt will crystallize in the delivery tube and burst the apparatus. When properly made there is nothing to drain from the salt, and the farther direction, to "dry it on bibulous paper," is equally unnecessary.

ANTIMONII ET POTASSÆ TARTRAS

Should be transferred to the materia medica list, and there would then be no necessity for the next succeeding preparation, the oxide of antimony. The process for the latter is one of the most difficult and complicated of the Pharmacopœia, and the ox-

ide is only used for making tartar emetic, having been superseded in therapeutics by the oxysulphuret, or Kermes mineral. Should be oxysulphide.

ANTIMONII SULPHURATUM

Should be dismissed as an inferior and unnecessary duplicate of the oxysulphide.

AQUA AMMONIÆ.

Unless the muriate of ammonia be purified, or a wash bottle be used, the product of this process will not be free from foreign odor and empyreuma, both of which are objectionable for medical uses.

It is questionable whether this process should not be omitted, and be substituted by one of simple dilution of the aqua ammoniæ fortior.

AQUA AURANTII FLORUM

Should be transferred to the materia medica list. See Gobley's test, Proceedings for 1866, page 148.

AQUA CAMPHORÆ.

See paper by a member of the Association, Mr. G. F. H. Markoe, in the Proceedings for 1865, p. 153. Does the camphor not crystallize out of the officinal solution in cold weather?

AQUA CREASOTI

Should be filtered.

AQUA DESTILLATA.

In this process is found a curious instance of the sacrifice of common sense to English grammar. The direction is "Distil two pints, using a tin or glass condenser, and throw them away; then distil sixty-four pints, and keep them in glass bottles." The throwing away the condenser is not justly chargeable to grammar; but the sixty-four pints of water, requiring a relative pronoun in the plural, is grammatical nonsense.

ARGENTI NITRAS.

The solution should finally be evaporated to dryness, being stirred into a granular condition. This shortens and simplifies the process, is more economical, and yields the product in a more convenient condition for use. The test by burning with sugar should be given here.

ARSENICI IODIDUM.

The reaction is best started in the mixture by dipping the very lowest portion of the flask, or just touching it for a short time to hot water. The reaction is then more gradual, and less iodine is sublimed out before the combination is effected.

BISMUTHI SUBCARBONAS.

This process, which was adopted at the suggestion of your reporter, needs, after prolonged experience, a few modifications, which, though apparently trifling and insignificant, are really as important to the production of uniform and accurate results as the quantities of the formula. Even with the greatest care and a prolonged experience there is still a small and unaccountable variation in the composition of the product. Nine and a half per cent. fairly represents the average loss on heating, yet there are occasional slight variations from this in an extended experience.

The first direction, to "press out as much of the liquid as possible," is unnecessary, and should be omitted. The direction to heat nearly to the boiling point after adding the second portion of the nitric acid, is not only unnecessary but hurtful, and when omitted, as it should be, the necessity for diluting the solution to permanent milkiness is avoided, and the solution requires to be simply diluted with four fluid-ounces of distilled water instead of this whole sentence. In the next paragraph, the carbonate of soda should be dissolved in twelve fluid-ounces instead of "twenty fluid-ounces of distilled water." Finally, the direction to "press the precipitate," should be omitted, and, instead of bibulous paper, it should be dried slowly in little mounds, on common delf plates in a room free from gases and odors.

The water of ammonia used in the first precipitation should be diluted with an equal volume of distilled water.

BISMUTHI SUBNITRAS.

This process requires to be modified in exactly the same points and in the same way.

CADMI SULPHAS.

This preparation should be dropped as useless. It is but a dear substitute for sulphate of zinc, which became fashionable for a short time. If omitted, the metal cadmium should be dropped from the list, as this is its only use.

CRETA PRÆPARATA AND TESTA PRÆPARATA

Should both be dismissed as useless. The processes are both imperfect, and, if retained, the processes should be improved.

CARBO ANIMALIS PURIFICATUS

Should be heated to redness out of contact with the air, after drying it.

CERATUM ADIPIS.

This, and all other cerates into which white wax enters, should have yellow wax substituted for the white. A paper by a member of this Association, Mr. Ferris Bringham, appears to decide this point very definitely. See Proceedings for 1867, page 78, and for 1868, pages 116 and 416.

CERATUM EXTRACTI CANTHARIDIS.

All the experience in practice which your reporter has been able to collect is so favorable to this preparation that he would advocate the dropping of the old ceratum cantharidis in favor of this.

In the process the resin, wax and lard should be melted together and strained before the extract is added, and then the final straining is unnecessary. Flannel is better than muslin for straining cerates, and blanket often better than either, though muslin is directed in all the cerates which are strained.

CINCHONIÆ SULPHAS.

This preparation and sulphate of quinia should both be transferred to the *Materia Medica* list.

COLLODIUM.

It happens that of late years gun cotton is made on the large scale and cheaply, for photographic uses, and is easily bought in any quantities. It also happens that this kind of gun cotton is that best adapted to make collodion for surgical purposes.

Then, as it is not always easy for an ordinary buyer in small quantity to get cotton which is fit to make gun-cotton of, and as the process in ordinary hands is difficult, precarious, and not free from danger, it is suggested that gossypium (cotton) be dropped from the *Materia Medica* list, and that pyroxylin (gun-cotton) be substituted for it. The fact that collodion is used surgically for two distinct purposes, at one time for its contractile properties, and at others for its simple protecting influences, is recognized in the British Pharmacopœia by providing two distinct preparations, and it would be well to follow this example. The present formula contains too little gun-cotton and makes too brittle a film for most uses, while it contains too much for the greatest degree of contraction; and a series of experiments have been made in the laboratory of your reporter by one of his assistants, who is a member of the Association, and Mr. Muss-giller presents his paper upon the subject at this meeting.

Five or six per cent., or even more, of coal tar creasote or impure carbolic acid may be added to collodion, forming a phenol-collodion, with very great advantage for many uses. Such a preparation is hardly advised for the Pharmacopœia, because it is made by the simple addition of the phenols to the collodion. But it is well calculated to supercede most of the "carbolic acid plasters," so-called.

The cantharidal collodion should be made from the flexible variety. There is some doubt as to whether this preparation is strong enough in vesicating properties. One minim represents but half a grain of cantharides, and, when well made, complaints of want of activity occasionally occur.

CONFECTIO SENNÆ.

It is probable that a clerical error has been made in this process. When carefully and critically used it produces a mixture which is much too thin for a confection, and which speedily spoils. It has, therefore, been necessary to give up the preparation, or make it non-officially. If the "pulpy liquid" be evaporated to eighty-four troyounces, and then the senna and coriander added, the whole will weigh ninety-six troyounces, as was probably intended. At least this makes a very good

preparation. See a paper by Mr. G. F. H. Markoe, *Proceedings* for 1868, p. 464.

DECOCTUM DULCAMARÆ AND
DECOCTUM HÆMATOXYLI

Dismissed as useless.

EMPLASTRUM AMMONIACI,
EMPLASTRUM AMMONIACI CUM HYDRARGYRO,
EMPLASTRUM ANTIMONII,
EMPLASTRUM ASSAFŒTIDÆ,
EMPLASTRUM FERRI,
EMPLASTRUM PICIS BURGUNDICÆ,
EMPLASTRUM PICIS CANADENSIS,
EMPLASTRUM RESINÆ AND
EMPLASTRUM SAPONIS

Dismissed as useless.

EXTRACTA.

The general direction to evaporate to the consistence proper for forming pills is indefinite, and possibly from this reason, as well as from the difficulty attending it, it is rarely complied with. This appears to be recognised in the next paragraph, wherein the softer extracts are directed to be sprinkled with alcohol, unless this direction refers to all except the dry extracts.

The extracts generally are very much in need of good characteristics and tests.

As applying to both extracts and fluid extracts, your reporter strongly favors the introduction of repercolation, and of considerable modification of some of the menstrua. Hitherto it seems to have been the aim to use alcoholic menstrua just as weak as possible, to secure the holding of the active principles, and it occasionally happens that the menstruum used is so weak that the active principles are not easily washed out or securely held. This is bad economy. The alcohol should be used of that strength in which the active principles are most soluble, and all else least soluble; and the last condition is quite as important as the first. This amounts to saying that the alcohol should generally be used as strong as possible. By this much is gained in the percolation, more in the evaporation, and most of all in the character of the product.

The term repercolation has been objected to, and it is certainly

not a perfect one, if even a good one. But the only one proposed as a substitute seems to be no better, namely, Fractional Percolation.

The older process, which this is designed to improve, is a fractional percolation, and as much so as that now called repercolation. Yet as fractional percolation was never applied to the older process, it would be available for the newer one, except for the better reason that it does not express the essential point which needs to be expressed. To percolate means to strain through, and the word applies to the substance strained through, and not to the substance through which the straining is done.

In its original application and meaning it was just the reverse of its application in pharmacy; for straining through implies the separation of something by the strainer, or percolator, from the substance strained, or percolate. In our application of the word this seems to be reversed; the substance or liquid, instead of losing something to the strainer, takes up something from the strainer, and carries this portion away. This application, however, is not new, or peculiar to pharmacy, since very old standard authors wrote of water charged with mineral substances by percolating strata containing them. Then as "to percolate" means to run fluid through a strainer, so "to repercolate" means to run fluid again through a strainer; and hence this is the essential meaning of the term as embraced in repercolation, and it matters not whether it be run again through the same strainer, or through another, since there is nothing either in the construction or application of the word to indicate this point. To run the liquid or percolate from one operation through another strainer or percolator, and perhaps again through a third, is the process sought to be expressed in one word, and it seems pretty plain that this is better done by the word repercolation than by the two words fractional percolation. Beside, the latter expression carries it into a relation with fractional distillation and fractional condensation with which, essentially, it has no analogy.

In making solid extracts upon a moderately large scale, with a nicely adjusted menstruum, and by repercolation, with a little education, there is but little difficulty in accomplishing the best results practicable, namely, through exhaustion without waste of

menstruum, and with the least possible menstruum; and in the second step, the least waste of menstruum without heating or with the smallest amount of heating. The amount of knowledge and education required for the successful application of repercolation is not greater than the Pharmacopœia has a right to demand from all who use that standard, and is far less than it does require of all to whom its characteristics and tests for simple substances, and its processes for preparations, are addressed; and the inconsistency of urging complexity as an argument against the introduction of repercolation in the presence of a requirement to use Marsh's test, to make pyrophosphate of iron, or even the tinctura opii deodorata, may be again alluded to.

These remarks, and the deductions intended to be drawn from them, applying to solid and fluid extracts in general, it only remains to allude to some of the peculiarities of some of the formulas.

EXTRACTUM CANNABIS PURIFICATUM

Should be made directly from the tops. It is a mistake to direct it to be evaporated to dryness.

EXTRACTUM CINCHONÆ.

See Am. Journ. Pharmacy for 1867, pp. 289 et seq.

EXTRACTUM COLOCYNTHIDIS ALCOHOLICUM,

If properly managed, need not have the seed separated. Well made extract of colocynth cannot be powdered so as to remain even in coarse powder, in consequence of its oily nature.

EXTRACTUM COLOCYNTHIDIS COMPOSITUM.

The alcoholic extract of colocynth cannot be made into fine powder alone; but may be powdered with the aloes and resin of scammony. Purified aloes should be substituted for the socotrine aloes. And the proportion of cardamom should be increased, or other corrigent added.

The preparation of this extract, by simply mixing the powdered ingredients, is bad. The aloes and soap particularly need combination rather than admixture. There are perhaps few preparations wherein more is sacrificed to simplicity.

EXTRACTUM CONII AND EXTRACTUM CONII ALCOHOLICUM

Should both be made from the unripe fruit, and by a special process. See Dr. Manlius Smith's papers in Trans. N. Y. State Med. Society, and Dr. John Harley's work on the Old Neurotics.

EXTRACTUM DULCAMARÆ

Dismissed as useless. Also,

EXTRACTUM HÆMATOXYLI.

EXTRACTUM IGNATIÆ ALCOHOLICUM,

Little used and of doubtful utility, because it appears to be but a duplicate of the similar preparation from *nux vomica*.

EXTRACTUM JALAPÆ.

It has been abundantly shown that the aqueous portion of this extract is inert and useless, whilst it impedes and complicates the process very much, and gives a product difficult to powder, and still more difficult to keep in powder. There is no demand for this extract in the officinal form, it being always required in powder.

EXTRACTUM NUCIS VOMICÆ ALCOHOLICUM.

This preparation also is invariably required in powder. Some provision for separating the inert fixed oil is badly needed.

EXTRACTUM OPII

Should be made from opium, which has been dried and powdered.

EXTRACTUM PODOPHYLLI.

It has been shown by your reporter elsewhere that the aqueous portion of this extract is inert, and that it is equally troublesome with that of *jalap*.

In the fluid extracts your reporter has to suggest the substitution of glycerin for sugar throughout, for reasons now too well known to need recapitulation. Taken by weight glycerine is now not double the price of sugar, and is less costly than alcohol, and there is every probability that within a year or two it will be still much lower in cost. Even now officinal glycerin can be produced in this country at a cost to the maker of not over fifteen

or sixteen cents per pound. Its uses in pharmacy as a solvent and menstruum are not sufficiently investigated.

EXTRACTUM CINCHONÆ FLUIDUM.

See Amer. Journ. Pharm. for 1867, pp. 289, et seq.

EXTRACTUM CONII FLUIDUM

Should be made from the unripe fruit, by moistening with alcohol, grinding and expressing, and altogether without heat. A preparation of good uniform quality can be easily made in this way.

EXTRACTUM DULCAMARÆ FLUIDUM.

Dismissed as useless.

EXTRACTUM IPECACUANHÆ FLUIDUM.

The process for this fluid extract is not satisfactory. Ipecacuanha is occasionally met with which will give a satisfactory result from the officinal process, or but slight modifications of it. But as a general rule the inert resinous matter is very imperfectly precipitated, even by the repeated use of large quantities of water, and remains to render the syrup made from the fluid extract cloudy.

EXTRACTUM PRUNI VIRGINIANÆ FLUIDUM.

This is also an unsatisfactory process, and is much more difficult and complicated than repercolation. The preparation is not objectionable on account of complexity, and is exceedingly elegant and efficient when freshly made. But the hydrocyanic acid and essential oil rapidly disappear by change in keeping, and those physicians who use it most effectively often add hydrocyanic acid, or essential oil of bitter almonds, or both, when they use it.

Your reporter recommends a process of simple exhaustion of the bark by an alcoholic menstruum in the proportion of minim to grain, and the addition to this of a fixed quantity of hydrocyanic acid and oil of bitter almonds; or of leaving these additions to the physician at the time of using, if they should be found as unstable without the sugar as with it.

EXTRACTUM RHEI FLUIDUM.

This is another instance wherein the Pharmacopœia defeats its object by an impracticable process. As with cinchona, this preparation is so thick and viscid as to be unmanageable; and to such an extent that a portion made soon after the publication of the Pharmacopœia was returned as fast as it was sold. It was no valid defence to say that it was officinal, and that it could not be made officinal without this defective consistence, for the effect has been to create a prejudice against it which a subsequent modification of the process, in departure from the officinal process has not yet overcome in your reporter's neighborhood. This and some other preparations have taught your reporter the lesson that, where an officinal preparation proves, in his hands, to be inconvenient or objectionable in use, it is better never to offer it at all, no matter what its importance may be.

EXTRACTUM SARSAPARILLÆ FLUID. COMP.

The mezereon in this preparation is occasionally objected to by intelligent physicians, and its use is of doubtful advantage.

EXTRACTUM SPIGELIÆ ET SENNÆ FLUIDUM.

The carbonate of potassa seems to be objectionable in this preparation, on the ground that it is almost if not quite useless therapeutically, whilst it materially increases the nauseous taste.

EXTRACTUM VERATRI VIRIDIS FLUIDUM.

This is a preparation of very doubtful utility, and therefore your reporter recommends its being dismissed. So active a preparation cannot be needed in greater concentration than the officinal tincture, and is therefore unnecessarily dangerous.

FERRI CHLORIDUM.

This process requires much modification, as well as elaboration to avoid the production of a very basic salt.

FERRI ET AMMONIÆ SULPHAS.

The officinal preparation cannot be made by the process given, the chief obstacle being the necessity of free sulphuric acid in the solution when set to crystallize.

FERRI ET POTASSÆ TARTRAS.

Here again the officinal process fails to yield the officinal substance. Notwithstanding all that has been written upon it, and a long and varied experience with it, your reporter has never succeeded with the officinal proportions. The bitartrate of potassa is in excess. The heat prescribed is far too high; and a little carbonate of potassa is necessary.

FERRI ET QUINIÆ CITRAS.

In all preparations where quinia is precipitated from the sulphate, many precautions and much more care are necessary than is generally indicated, and it is to be feared that such preparations are commonly very deficient in alkaloid strength. Frequent and strong objections are made to this preparation on account of want of ready solubility, and it is very often returned to the maker as useless. When freshly made, it is easily soluble to almost any extent in cold water, by simply allowing them to stand together for a few hours. As the preparation grows older it becomes less easily soluble, requiring more time, but your reporter has never tried a sample that did not dissolve in a few days. The salt parts with its water slowly and with difficulty, and resumes it in the same way, and the fact that these are among its therapeutic advantages, and prominent objects in its construction, is often overlooked through the ignorance of physicians and pharmacists. A tasteless preparation containing quinia and iron in an effective condition was the great need, and is so still. It was well supplied in this preparation, which was always to be given in powder or in pill. Its slow solubility rendered its impression on the stomach mild, gentle and agreeable, and slow but permanent, as tonics should be, going slowly and in dilute condition with the ingesta. But it had the misfortune to become fashionable, and that generally indicates extensive use without knowledge. Ignorant of the reasons for, and the advantages of, its condition, it was largely required in solution, wherein it is just as bitter and just as brusque in its action on the stomach as any other preparation of quinia. Of course it can very easily be rendered soluble, but the Pharmacopœia very properly resisted, and did not yield the solid advantages to popular demand. It

might be well, however, now to introduce some such preparation as that of the British Pharmacopœia under the present name for popular use, and add the word *rubrum* to the present name for that at present officinal.

FERRI FERROCYANIDUM

Is very difficult to wash clean on a filter as directed, but is much more easily washed by decantation, and yields a better product.

FERRI OXIDUM HYDRATUM.

In precipitating the oxide with ammonia the officinal direction should be just reversed; the iron solution being added to the ammonia.

In cases of emergency, if both solutions be but moderately diluted, both the washing and pressing may and should be dispensed with, as the sulphate of ammonia is not hurtful, and would probably aid in producing emesis.

FERRI PYROPHOSPHAS.

The dried phosphate of soda should be powdered before being heated in the shallow iron capsule, and when heated should be tested with solution of nitrate of silver. The solution of citrate of ammonia should be filtered before being added to the iron salt.

This preparation loses its ready solubility by age.

FERRI SUBCARBONAS.

The solution of sulphate of iron should always be added to the solution of carbonate of soda with rapid stirring, and never otherwise.

The precipitate should be washed by decantation and, when drained, should be dried in little mounds upon delf plates, and only at natural temperatures.

FERRI SULPHAS

Should be prepared in a granular form, and washed with alcohol before drying.

FERRI REDUCTUM

Should be transferred to the *Materia Medica* List, with careful description and tests.

HYDRARGYRUM CHLORIDUM CORROSIVUM,
HYDRARGYRUM CHLORIDUM MITE,
HYDRARGYRUM OXIDUM RUBRUM, and
HYDRARGYRUM SULPHURETUM RUBRUM,

Should all be transferred to the *Materia Medica* List, because, however skillful, the pharmacist cannot make them fit for medicinal uses on any scale adapted to his facilities.

HYDRARGYRI IODIDUM VIRIDE.

This name seems particularly inappropriate to a substance which never is nor can be green, but which is commonly almost as yellow as powdered rhubarb. Since alcohol is so costly, a hot solution of chloride of sodium is much more economical and is quite as good for washing the yellow iodide free from the red.

HYDRARGYRI SULPHAS FLAVA,

Dismissed as an useless therapeutic alternative.

HYDRARGYRUM CUM CRETA,

Should be made with the use of honey. See paper by Mr. J. P. Remington, in *Proceedings* for 1868, pp. 77, and 379.

INFUSA.

More than one-half of the thirty-one formulas for infusions are regarded as useless; and some of these are very irrational.

LINIMENTUM CALCIS.

Dismissed as useless.

LINIMENTUM SAPONIS.

This process does not hold all the soap in solution, probably from containing too little water.

LIQUOR AMMONIÆ ACETATIS.

The formula makes too much at a time, and the filtration should be avoided by the quality of the materials used. Should be left faintly acid and never alkaline.

LIQUOR FERRI CITRATIS.

In precipitating the hydrated oxide of iron, the iron solution should be added to the ammonia, and never *vice versa*. The

citric acid in this formula is in excess, and the temperature directed is too high.

LIQUOR FERRI SUBSULPHATIS.

As nitric acid is liable to vary in strength and still be near enough when judged by ordinary hydrometers, and as more or less is always driven off undecomposed, the stated quantity should be supplemented by the words "or a sufficient quantity," for it should of course always be used until the oxidation is complete, and there should be a direction for securing this by a test. The finished preparation should be made up by weight and not by measure. These remarks apply to liquor ferri tersulphatis.

The peculiar advantages of the solution of subsulphate of iron and its freedom from irritant properties are due to the small proportion of acid, and therefore it might be supposed that the less acid in its composition the better. Acting upon this assumption, your reporter some years ago made this solution with a smaller proportion of sulphuric acid, and called it liquor ferri subsulphatis minus. This was used by many physicians with close observation, and was generally supposed to be an improvement on the officinal. It is therefore suggested that the proportion of sulphuric acid be reduced as far as possible, consistent with the permanence of the preparation.

The percentage of iron and of oxide of iron in both this and the tersulphate should be stated.

LIQUOR GUTTA-PERCHÆ.

This formula and process has, in the hands of your reporter, been an entire failure, and is therefore considered altogether impracticable. A bottle containing twice the officinal quantities, put together with critical care by the officinal directions, has now been standing since Nov. 1868, (9 months,) and is still a dirty milky looking liquid, entirely unfit for use. The author of the process must have been misled by the use of some peculiar materials, as not unfrequently happens in the Pharmacopœia process.

The preparation is a very useful one, and the process should therefore be reconstructed.

LIQUOR MAGNESIÆ CITRATIS.

This formula and process, also, has, in the hands of your reporter, been an entire failure as far as pharmacy is concerned, and after trying many of the processes published during the past few years, that which seems to give the best results is published in the Am. Journ. Pharm. for 1867, p. 112, by Mr. John T. Buck, of Jackson, Miss., as being the formula given to him by Mr. Jas. W. Criswell, of Woodville, Miss. A bottle of this, now thirteen months old, is in good condition and without deposit.

LIQUOR MORPHIÆ SULPHATIS.

Dismissed as a useless preparation, and liable to be confounded with "Magendie's solution," which is sixteen times the strength, and much more commonly used outside of Philadelphia practice. If it be necessary to have an officinal solution of a morphia salt, it should be stronger than one grain to the fluid-ounce. But your reporter believes that no such solutions are either necessary or wise.

LIQUOR PLUMBI SUBACETATIS.

Much time and fuel may be saved by the simple introduction of the word "boiling" before "distilled water," in this process.

LIQUOR POTASSÆ and
LIQUOR SODÆ.

From some rude experience it seems probable that the recently published processes, wherein these preparations are made cold, are at least as good as the more troublesome officinal ones. But whether made hot or cold, unless the straining be followed with a treatment with lime, in small proportion, there will be a notable amount of carbonic acid in the preparation.

MAGNESIA

Should be transferred to the *Materia Medica* list.

MORPHIA.

The advanced cost of alcohol since the last revision renders the present process impracticable. In seeking for a better one, a modification of the original process of Gregory stands prominently forward, and has been adopted by the French and British

Pharmacopœias. Your reporter has frequently used this process among others and considers it the best one known at present, at least for Pharmacopœia purposes. It has the collateral advantage of saving the codeia. If there be a process better adapted to the Pharmacopœia it is the simple and effective one now relied upon by your reporter in making a preparation called liquor opii compositus, and the assays connected with it. This process is published in the Amer. Journ. Pharm. for 1860, p. 120, et seq., but has been considerably modified by the increased cost of alcohol and prolonged experience. As a morphometrical process of assay, that of the younger Guillermond, as modified by M. Saint Plancat, appears, from two or three trials of it by your reporter, to be the best he has used. If further experience should confirm this judgment it should be adopted in connection with opium.

The recent Prussian Pharmacopœia abandons all these alkaloids as preparations, and simply describes them carefully and critically. This example your reporter would be unwilling to follow, unless the present processes for them should be replaced by careful processes of assay for both the crude drug and all the officinal preparations made from it. Thus, instead of the present process for morphia, this alkaloid might be transferred to the Materia Medica list, and a process given in connection with opium by which not only opium but all its officinal preparations could be tested.

MORPHIÆ ACETAS.

A very much better process for this preparation is to take glacial acetic acid in slight excess of the equivalent quantity, and combine it, undiluted, with the morphia in a mortar. All the evaporation etc. are thus avoided, and a little exposure of the resulting acetate in warm air frees it from excess of acetic acid.

MORPHIÆ MURIAS and MORPHIÆ SULPHAS.

These preparations are good examples of a very unnecessary and hurtful use of water common to all Pharmacopœias. It is not only entirely unnecessary, but positively injurious, to take in

each of these formulas a half pint of water, and then drive say half of this, at least, off by subsequent evaporation. It took your reporter many years to get out of this bad practice, so authoritatively taught by the Pharmacopœias.

OLEA DESTILLATA.

The prefatory remarks made under this sub-head are too meagre to be of much value. The general formula given for the preparation of these oils, and referred to under the separate oils as they are enumerated, can be only useful as a kind of definition, and as such might be much shortened by simply saying that these oils are generally prepared by distillation with water and steam. To any one practically acquainted with troublesome and delicate distillations the present paragraph does no harm, but to others it is liable to be "a delusion and a snare."

All these oils that are retained might well be transferred to the *Materia Medica* list, where many similar ones are at present found; and why they are thus separated at present is not very apparent. Many of them could well be spared altogether.

OLEORESINÆ.

Repercolation is well adapted to these preparations, and materially lessens the chief objection to their use, namely, high cost. They are most valuable preparations, and need only to be better known.

PILULÆ.

All pills containing aloes should take purified aloes. Many of the pills require glycerin to prevent hardening.

The Pharmacopœia should express itself either for or against the prevalent practice of sugar coating pills. If it be legitimate and good practice let it be adopted. If not, let it be characterized as non-official pharmacy, and be left to the nostrum venders. Your reporter is very much opposed to this practice on therapeutic grounds, and believes that the practice has only become general through the profits it yields to the enterprising manufacturers, and the skill with which it has been advertised.

The Prussian Pharmacopœia directs its only pill mass to be divided into two grain pills.

The Paris Codex, four years later, 1866, directs many of its pill masses to be kept in covered pots, and made as wanted into pills of prescribed weight.

The British Pharmacopœia, a year later than the Codex, simply prescribes the dose of the pill mass, leaving to the physician and pharmacist to decide upon the number and size of the pills. These supposed improvements in the pharmacy of pills appear to be all directed to avoid the hardening of pills by keeping, which has always been a serious objection to them. The use of glycerin, however, and the avoiding of any coating will obviate this hardening, and enable our Pharmacopœia to avail itself of a conservative course.

PILULÆ FERRI CARBONATIS.

The resulting mass varies with the density of the honey used. If the best natural honey be used the preparation is too stiff when evaporated to eight troy ounces as directed. This weight should therefore be changed to nine troy ounces.

The solution of sulphate of iron always requires filtration, and that of the carbonate of soda generally. The former needs protection during the filtration, but the latter does not. It is, therefore, better to add the two fluid ounces of syrup to the iron solution instead of adding one fluid ounce to each as directed.

PILULÆ FERRI IODIDI.

The iron is not only in unnecessary excess, but is troublesome and entails loss. One half the prescribed quantity, sixty grains, gives an excess of seven grains, which is quite sufficient.

The process is good until the evaporation, when the mass is found so tough as to be quite unmanageable. This springy or elastic toughness admits of the mass being rolled with difficulty, and the pills when cut and well rounded have an uncontrollable tendency to return to their square ended shape. The mass weighs 1280 grains, and this gives too large a pill. It needs to be reduced one-third, and to have the marshmallow replaced by something yielding a better mass.

PILULÆ HYDRARGYRI.

This formula and process needs amending in the manner urged by your reporter ten years ago.

PILULÆ QUININÆ SULPHATIS.

This formula requires the addition of aromatic sulphuric acid, or, what is better—dilute phosphoric acid,—and glycerine.

POTASSÆ ACETAS.

This may be, and commonly is an apparently dry salt, while containing a very large and variable quantity of water not contemplated in the Pharmacopœia. Therefore it should be directed to be dried to a given weight by very careful heating and very active stirring.

176 parts of officinal acid require 100 parts of bicarbonate of potassa, if the latter be pure and dry, and these yield $99\frac{1}{2}$ parts of the salt which the Pharmacopœia does or should intend to direct. The beautiful white, light commercial salt contains far more water, and the more the better the profit.

Bicarbonate of potassa often contains sulphate of potassa and other salts not decomposed by acetic acid nor soluble in the very cold solution formed by the reaction of this process.

POTASSÆ CARBONAS.

The impurities of impure carbonate of potassa, or pearl ash, are such that the product of this process is not considered fit for pharmaceutical uses, and it should therefore be improved or dismissed. Your reporter favors its dismissal, when the present potassæ carbonas pura would take its name and place, and be much better.

POTASSÆ CARBONAS PURA.

This process requires much amending; an iron crucible and fire are not necessary nor easily used with success; a covered porcelain capsule and gas flame being quite sufficient for both the heating and the evaporation. The quantity of water for solution should be twelve fluid ounces. The drying directed is insufficient and indefinite; it should be dried in a tared capsule until it weighs seven troy ounces and four hundred grains. It is then not very deliquescent.

POTASSÆ CITRAS.

There is a great excess of water here, and a proportionate amount of lost time and labor. Both crystals, in a one gallon

capsule with half a pint of distilled water, warmed over a gas flame, completes the solution in a few minutes. The saturation should then be tested and the solution filtered through white paper,—not strained, as directed. In drying it does not need rubbing in a mortar, and should not be passed through a sieve. It should be dried until it weighs fifteen troy ounces. The salt is yellowish-white,—not white.

POTASSÆ TARTRAS.

It is very objectionable to take carbonate of potassa rather than pure carbonate for this salt.

POTASSII IODIDUM AND POTASSII BROMIDUM

Should both be transferred to the *Materia Medica* list with very careful guarding and description.

PULVERES.

All the Pharmacopœias of later times give their negative influence against powdered drugs, and it is too often forgotten that, with the single exception of the *Paris Codex*, there are no official powdered drugs in the prominent Pharmacopœias. No Pharmacopœia can ever safely recognize the use of commercial powdered drugs in its processes. To see the drug before it is powdered, and to see that the powdering is in honest hands, is the utmost that should ever be conceded, and this should be definitely stated under this head.

PULVIS AROMATICUS

Deteriorates rapidly, and should not be long kept.

RESINA JALAPÆ

Should be made by repercolation, and be dried until it has a sharp resinous fracture when cold.

RESINA PODOPHYLLI.

See *Amer. Journ. Pharm.* 1868, p. 1. et seq. The present formula and process are very objectionable.

RESINA SCAMMONII.

The precipitation and washing with water are unnecessary; and the resin should be dried until it has a sharp resinous fracture.

SODÆ BICARBONAS

Should be transferred to the Materia Medica list, and be there well described and guarded, as it is liable to be very impure.

SODÆ PHOSPHAS

Should also be transferred to the Materia Medica List.

SODÆ VALERIANAS.

It is not judicious to dry this salt quite to the extent directed, because in so doing there is risk of decomposition. It may be dried by steam heat, so as to leave about 6 per cent. of water in it with advantage.

Purified carbonate of soda is better to saturate with than solution of soda, and is far more economical.

The salt is never quite white, in the experience of your reporter.

SPIRITUS ÆTHERIS NITROSI.

This formula is believed to be on about double the scale which is best adapted to the Pharmacopœia.

The s. g. given is too high. It should be 0·831 instead of 0·837.

SPIRITUS AMMONIÆ AROMATICUS.

This preparation is not so good as formerly, when made by distillation.

SPIRITUS LAVANDULÆ COMPOSITUS.

Omit the red saunders. It is hoped that the days for coloring matters in officinal preparations are past.

Some of the officinal spirits could be easily spared.

SYRUPUS FERRI IODIDI.

This process, accepted by the committee from your reporter, was however changed in an important feature in opposition to his advice and experience, now needs modification in two or three points.

The iron is taken in too great excess. Two hundred and twelve grains is the equivalent weight required, supposing the iodine to be dry and pure. Two hundred and twenty-five grains is sufficient, and more is troublesome and entails loss. A thin flask is not necessary, and the risk should be avoided. In

making any considerable quantities it should be set in cold water to moderate the reaction, and for the same reason the iodine should be added to the iron and water in small portions at intervals. The syrup should not be heated, because this favors its conversion into glucose; and only two fluid ounces of it should be taken, and this put into the bottom of a round-bottomed tared capsule. The point of the funnel used in the filtration should pass down through the stratum of syrup, and the filter should be a double one, and well wetted. In this way, should the filter break, as not unfrequently happens, the consistence of the mixture is not so much increased as to prevent filtration. Whilst if it breaks into the whole or a large portion of the syrup, the after filtration will be so slow as to spoil the whole by air contact. The filter should not be rinsed through, but simply drained, and the quantity should be made up by weight and not by measure. This weight is 12,453 grains, and the s. g. is 1.371.

SYRUPUS RHEI AROMATICUS

Does not make a perfectly transparent preparation, and the cloves is too prominent. S. g. 1.284.

Several of the officinal syrups could be dismissed without loss.

TINCTURÆ.

Many of these preparations are but useless therapeutic alternatives for each other, or for fluid extracts, and should be now abandoned. The strength of the menstrua used for tinctures requires re-examination.

TINCTURA CARDAMOMI COMPOSITA.

Drop the cochineal, and all these coloring matters wherever they are used.

TINCTURA IODINII COMPOSITUS.

There must be an error here in using alcohol instead of diluted alcohol. The iodide of potassium is not soluble in the mixture of alcohol and iodine.

TINCTURA FERRI CHLORIDI.

This formula and process has been used by the writer, by his assistants, and by some pharmacists in his neighborhood, for

many years with success. And if it was a little more elaborated and the necessary details supplied, it would be, in your reporter's judgment, unexceptionable, or at least much better than any substitute which has been published. It is not difficult for those who have repeated it often enough to become educated to it, to understand the difficulties so often complained of. These are of two classes, of which the first and most important is defective materials. The other is want of definite detail in the successive steps of the process; want of knowledge and skill on the part of the operator, and want of care. Few persons will succeed with any such process the first time, and it often happens that objections and difficulties, which appear grave at first, disappear with experience and the closer observation which this begets.

TINCTURA OPII—TINCTURA OPII DEODORATA.

It appears to be very desirable, if not necessary now, that these and all preparations of opium should have a definite prescribed morphia strength; that is, should be made by assay, or at least from assayed opium, and the strength be adjusted by dilution.

Early in 1860 your reporter made an assayed solution of opium;—or rather made it some time before, but published the formula and his experience with it at that time. This was called *Liquor Opii Compositus*, and a detailed account of it may be found in the *Amer. Journ. Pharm.* 1860, pp. 115 et seq. This was proposed to the Committee of Revision, but was rejected in favor of the present officinal *tinct. opii deodorata*. As soon as the formula of the latter was authoritatively published, your reporter made it, and offered it for sale, together with the assayed preparation, giving briefly the prominent points of both, but claiming that the Committee of Revision preferred the present officinal. This latter was also offered with a considerable discrimination in price in its favor, and physicians were asked to use it with, or substitute it for, the other. Beside this, it was always made from assayed opium, and was of uniform strength. This course has now been fairly pursued by your reporter for about ten years, with occasional reports from good authorities upon the comparative merits of the two preparations, the strength and uniformity

being the same. These reports have been without exception in favor of the compound solution, and its use has increased steadily and much more rapidly than that of the deodorized tincture, and this without any advertising of any kind, except the no small advantage of official authority and preference.

Under these circumstances, your reporter would recommend a change in the composition of the compound solution by replacing the compound spirit of ether, which it contains, by either chloroform, or acetic ether, or both, and its adoption in the next Pharmacopœia. There is now no doubt, in your reporter's judgment, as to the utility and efficacy of the process used for depurating the opium, nor of the assaying. Nor is there any doubt of the therapeutic advantage of the compound spirit of ether. But the odor of ether is very disagreeable and even nauseating to a small proportion of patients, and recent experience has shown that the modifying influence of chloroform upon opiates is very favorable and very useful. It has occasionally happened that, where the comp. solution of opium has been long kept with free access of air, particularly when kept in warm places or in warm climates, that the odor of ether and of oil of wine have disappeared and been replaced by quite as strong an odor of acetic ether. The preparation thus changed has in a few instances been well tried therapeutically, and, so far as these few trials go, has been considered to be unimpaired, whilst it has been more acceptable to the stomach. Successful and skillful French physicians have long habitually used acetic ether as a nervous stimulant and diaphoretic, and as an agreeable and useful corrigent very acceptable to the stomach. The chloroform and acetic ether, if used together, would make a very elegant preparation, and would protect the solution from change quite as well as the compound spirit of ether.

Whether this or any similar preparation be adopted in the next revision is, however, a matter of much less consequence than the making of all opium preparations by assay. And your reporter cannot too strongly urge this point in connection with the Pharmacopœia.

TROCHISCI CUBEÆ.

This preparation is too strong in oleoresin. One-half or even

one-fourth the strength is much better adapted to the use of a troch.

UNGUENTA.

Yellow wax should be substituted for white wax throughout these preparations.

UNGUENTUM HYDRARGYRI.

The formula and process published, and proposed to the committee at the last revision, is again urged. The extensive experience of the army has shown that the proportion of suet might be still farther increased with advantage. The ointment best adapted to army use in all climates, and used now for many years, is made one-fifth lard and four-fifths suet.

UNGUENTUM HYDRARGYRI NITRATIS.

In this preparation the neats-foot oil should be replaced by an equal quantity of lard. Neats-foot oil, if ever fit for medicinal use, is only in such condition when purified and depurated to the consistence of sperm oil, and then it makes the ointment too thin. Beside, neats-foot oil is now-a-days obtained from such sources as to properly exclude it from Pharmacy. In the extensive general use of this ointment by the army, it was soon found necessary to depart from the proportions of the official formula, and the oil was step by step reduced and replaced by lard, until finally lard alone has been used for many years past.

VINUM ERGOTÆ.

There are two clerical errors in this formula, at least in the earlier edition of the Pharmacopœia.

ZINCI ACETAS.

This formula was faithfully and critically used, and with success, but was soon abandoned for that of simply saturating acetic acid with oxide of zinc. Oxide of zinc and acetic acid, both nearly chemically pure, are abundant in the markets when sought with discrimination, and the process is then simple and easy.

ZINCI CHLORIDUM.

Chlorine and oxide of zinc are better for removing iron than the nitric acid and chalk of the official process. And it is now

rarely difficult to get both muriatic acid and oxide of zinc which are perfectly free from iron, and therefore need neither.

ZINCI VALERIANAS.

This process is precarious and troublesome, but after trial of two others, your reporter knows no better one.

This terminates what your reporter has time to write, and all that could be appropriately read in the time which could be spared for that purpose. The matter here presented in its most condensed form was increasing up to the last moment, and therefore the writing of the report having been crowded into the last four or five weeks, is not as carefully and accurately done as it should have been. The question has been what not to say, rather than what could be usefully said, so that notwithstanding the time and labor given to it, the work needs an apology.

The important task of enumerating what has accumulated within ten years, which might be usefully or properly added to the Pharmacopœia, is too great for your reporter to undertake; and the literary labor and discrimination necessary for this work is beyond his ability.

In conclusion, let all who hear or read this report be guarded against the inference that because a few things have been found which have not borne the test of experience, and more that may be usefully amended, therefore we have a bad Pharmacopœia, or that there is nothing in it worthy of commendation. Because this report is in its necessary character and object a kind of hypercritical "black book," which has been for ten years kept against the Pharmacopœia, it is not to be taken for granted that the Pharmacopœia is deficient or imperfect in comparison with other Pharmacopœias, even of much more recent date. For, setting natural prejudice as much as possible aside, your reporter is impelled to offer his testimony to the supposed fact that, as it stands to-day, it is equal with any Pharmacopœia of the world; and so far ahead of our general practice in pharmacy, that nicely critical improvements upon it seem almost superfluous. Its merits have spoken for themselves, and it neither needs nor admits of laudation, if we have a proper respect for its dignity and authority. Defect and defection both belong rather, or more,

to us than to the Pharmacopœia. . If we would but conform our daily practices more to its spirit, and show more deference to its authority, we should be much better employed than in picking out its faults.

All of which is respectfully submitted to your serious consideration, by the Chairman of your Committee. The other members of the committee, Messrs. Procter and Taylor, not having seen this report, are in no degree responsible for its contents. And the Committee having now finished its work, considers itself discharged.

BROOKLYN, Sept. 1, 1869.

REPORT OF THE DELEGATE TO THE THIRD INTERNATIONAL PHARMACEUTICAL CONGRESS.

NUREMBERG, BAVARIA, Sept. 18, 1869.

To the Permanent Secretary of the American Pharmaceutical Association :

The undersigned respectfully submits the following report to the Association :

The third International Pharmaceutical Congress was held at Vienna, in the green room of the Aula, from September 9th to September 11th.

The Congress assembled on Thursday, Sept. 9th, at 9 o'clock, A.M. The meeting was called to order by Mr. Beckert, Director of the Austrian Pharmaceutical Association, who welcomed the delegates, expressing hopes that the deliberations of this Congress may influence the Austrian government in favor of schools of pharmacy independent of the supremacy of the medical department.

A committee was appointed to examine the credentials of the delegates. The following countries were represented :

Delegates.		Delegates.	
United States of America,	1	North Germany, .	. 7
Austria,*	. 12	Russia, .	. 3
France,	. 8	Italy, .	. 1
England,	. 2	Switzerland,†	. 1
South Germany,	. 8		

The following elections took place :

President, MR. DANKWORTT, of Magdeburg, Director of the North German Association ;

First Vice-President, M. ROBINET, President of the Société de Pharmacie de Paris ;

Second Vice-President, v. TRAPP, of St. Petersburg, Russian Counsellor of State ;

Secretaries, MR. KLINGER, MR. LEHMANN, DR. VORWERK ;

Interpreters, v. WALDHEIM, DR. DITTRICH.

The election of interpreters facilitated the transactions greatly, the interpreters acquitting themselves very ably of their task by giving a condensed summary each time in English and French.

The questions before the Congress were :

1. Is the creation of independent schools of pharmacy in the interest of the public at large as well as in that of the pharmaceutical profession ?

2. What advantage do the Syndical Chambers, as proposed at the Congress at Paris, offer to the country and to the profession itself ? and is their introduction easy and in accordance with the times ?

3. Is the present supremacy of the medical profession over the pharmacist in regulating matters between him and government in accordance with the present scientific and social attainments of the former ? Is the representation in pharmacial matters by the medical profession of any benefit to the government, to the people, or to the pharmacist ?

4. Which way is to be adopted in order to obtain the most possible uniformity in the strength and proportion of medicines

*Two delegates from Vienna Assistants' Association.

† Swiss International Pharmaceutical Association.

universally used? (Continuation of the question about a Universal Codex, left open from the Paris Congress.)

5. Essays on the best methods for ascertaining the proportion of the active principles of crude drugs. (Left open from the Paris Congress.)

Mr. Dankwortt, on taking the chair, opened with a few appropriate remarks, thanking the Congress for the honor conferred by his election upon the North German Association, and hoping that unanimity of the resolutions may induce the government to comply with the wishes of the pharmacist.

After propounding the questions, committees were appointed on questions 2 and 3. The committee on question 2 was composed of Messrs. Dr. Björklund, Russia; Dr. Daubrawa, Austria; Mr. Evans, London; Dr. Friedrich, Austria; Giorgino, France; Yarmay, Hungary; Mialhe, Robinet, France; Dr. Schlosser, Austria; v. Schuppe, v. Trapp, Russia.

On question 3, Messrs. Beckert, Austria; Dr. Dittrich, Bohemia; Dr. Mirus, Saxony; Reimann, Prussia; Schmeisser, Saxony; v. Waldheim, Austria.

The President then opened the discussion on the first question, upon which many gentlemen gave their views, Mr. Robinet giving details about the Ecole de Pharmacie in France.

Prof. Redwood showed the propriety of creating independent schools of pharmacy. v. Trapp proposed that the Professors of such schools should be taken from the ranks of pharmacists. Dr. Schlosser proposed that the pharmacy schools should form an integral part of the universities, inferior in rank to no other faculty. Your delegate stated that in the United States the pharmacists themselves erected schools and Colleges of Pharmacy by their own means; that all measures tending to elevate the profession there emanate from the pharmacists only and their associations; that the American Pharmaceutical Association at its meeting in Chicago is framing a law to regulate the practice of pharmacy in the United States, to be proposed for adoption to the respective governments of all the States in the Union.

The first question was unanimously answered thus:

“High schools of pharmacy, as an integral part of the Uni-

versities, with graduated pharmacists as Professors, are essential to the interest of the public and the profession."

The first session closed about 1 P.M.

The afternoon was taken up by committee sessions.

The second meeting opened at 9 A.M. on Friday, the 10th.

The minutes of the previous meeting were read and approved, and discussion on the second question commenced. The committee proposed to treat this question as a part of the third question, which was adopted. Dr. Schlosser stated that the Syndical Chambers are identical with the Cremia, as proposed in Austria. Mr. Wolfrum said that the Cremia, as they are in Bavaria, have the same character, but they have no representation with government.

Mr. Evans, of London, gave a detailed account of the constitution of the Pharmaceutical Society of Great Britain, stating that all laws upon the practice of pharmacy emanate from the Board of this Society, and only need the sanction of the Queen's Privy Council; that candidates may obtain their knowledge anywhere,—all that is required from them is the evidence of a uniform standard of knowledge and experience. Once on the register, they impose as few restrictions as possible. "In Great Britain we glory in free trade and open competition, and, having satisfied our Board, the pharmacist is free to practice where and whenever he pleases."

On question 3 Mr. Reimann reported that the committee were unanimous for answering it in the negative: That the superintendence by the medical profession is incompatible with the present status of pharmacy, the pharmacist of our modern times being beyond what he was a century ago, and that he is entitled to self-government.

The third question was answered:

The supremacy of the medical profession, as it has been heretofore exercised in regulating matters between government and our profession, is not in accordance with the present scientific and social standing of the pharmacist.

Question 4 was not much discussed. A committee at Paris being engaged in working out a conspectus containing the differ-

ent formulas of active remedies, with the view to have the Pharmacopœias of the different countries adopt uniform formulas in course of time; Congress expressed wishes for the committee to continue their labor in this direction, and to communicate with other pharmaceutical corporations about that subject.

Question 5. Propositions were made to leave it to the committee that works off the conspectus. Some gentlemen thought this question was going too far; it should have been brought up in a different form. As the call of the President whether any one wished to speak on that question elicited no answer, it was resolved to drop it, and leave it to the Pharmacopœia committee.

The President next wished to be informed how the resolutions of this Congress should be communicated to the different governments, when it was resolved that this should be done by the President direct, as usual.

It was further agreed to lay a contribution on the members of this Congress, to meet the cost of publication.

The question for the time and place of the next meeting coming up, some members could not see the necessity of meeting in so short a time again as two years. Some gentleman proposed a term of five years; still, a maximal term of three years was agreed upon. The place of the next meeting of the Congress was not decided upon; it was resolved to leave it to the Boards of the five principal associations of Paris, North Germany, South Germany, Austria and Russia,—a stationary committee to remain at Vienna, the place of the recent meeting.

The gentlemen from Russia tendered an invitation to St. Petersburg as the next place of meeting.

Opinions were expressed as to the mutual benefit resulting to the profession from the social gathering and exchange of views of colleagues from so many different countries, after which the Third International Congress was declared closed by the President, at 11½ o'clock, A.M.

On the evening of the 11th the members of the Congress assembled at a banquet given by the pharmacists of Vienna. On that occasion cordiality prevailed everywhere, and appropriate speeches were made, bearing on the subject of pharmacy.

On the 10th, after the close of the Congress, the delegates adjourned to a photographic establishment to have their likenesses taken as a group. At 8 P. M., the members of the Congress were conducted to the Imperial arsenal, and in the evening they visited the new Opera House in a body.

On Saturday, the 11th, the members of the Congress made an excursion by rail over the Semmering Pass, as the guests of the pharmacists of Vienna. A special train was provided for this purpose, and a collation at the summit of the Pass, at an elevation of 4,500 feet. The Alpine scenery received its due share of admiration, and all returned in high glee in the evening, to return to their respective homes.

Your delegate had the honor of having bestowed upon him the diploma of honorary membership of the Pharmaceutical Association of St. Petersburg, and of the Société de Pharmacie de Paris.

Very respectfully,

JOHN FABER.

SPECIAL REPORTS AND ESSAYS.

ON PHARMACEUTICAL GLASSWARE.

BY THOMAS S. WIEGAND.

QUERY 8. What kind of Glassware is, on the whole, best adapted to shop furniture—what shapes are most to be preferred for salt-mouthed and tincture bottles, and what kinds of dispensing and prescription bottles are best? With practical remarks on the glass manufacture in its bearings on Pharmacy.

To the first question here propounded I would emphatically answer, the glass known to the trade as flint is without doubt preferable to all others, combining as it does clearness and brilliancy of metal and sufficient permanence of material to resist the action of those substances which are required to be preserved in glass vessels; this of course is not without exceptions, but it applies to the large majority of substances; a few, such as the caustic alkaline solutions, require vessels of peculiar materials, which will be noticed hereafter.

The proportions of bottles for shop furniture is perhaps of next importance.

The size of two ounce tincture bottles for those articles most frequently used in prescriptions should be

2 oz.	1½ in.	diameter	and	3 in.	to	bottom	of	neck,	wt.	3½ oz.
4 oz.	2 "	"	"	4 "	"	"	"	"	"	5 oz.
8 oz.	2½ "	"	"	5 "	"	"	"	"	"	9 oz.
Oj.	2¾ "	"	"	6½ "	"	"	"	"	"	14 lb.
Oij.	3¾ "	"	"	8 "	"	"	"	"	"	1¾ lb.
Oiv.	4 "	"	"	10 "	"	"	"	"	"	2¾ lb.

Salt-mouthed bottles are a trifle shorter proportionally.

I have not made any note of bottles larger than half gallon, as it seems to me that those of greater capacity prevent as great a variety of stock in the store room as there would be were that the largest size on the shelves.

In both tincture and salt-mouthed bottles the shoulder should slope at such an angle that nothing will remain in the bottle when inverted.

The weight of bottles for shop furniture is also a matter of importance; if too light the ware is not strong enough to be serviceable, and if too heavy is very liable to crack; such heavy ware being rarely annealed as well as it should be, it frequently cracks from the heat of the hand when in use; another objection is that it is wearisome to handle. The proper weight for bottles of different capacities is given in the table showing their respective proportions.

Having noticed the material proportions and weight of bottles best adapted for shop use, it is well to consider that important part of the bottle, its lip. This must not be so thick as to be clumsy, nor so thin as to be easily broken off; the outer edge of it should be elevated sufficiently to oblige any liquid to run back towards the stopper and drip down on the neck.

The stoppers of tincture bottles larger than six oz. should be of the kind styled mushroom, as it presents the same appearance at all times, the square stopper requiring to be placed parallel with the edge of the shelf.

The style of label has of late years been much improved, the burnished gold label ground, which is affixed by the New England Glass Company, being perhaps the most finished; this, however, has been nearly superseded by the glass lable lettered on the back and then gilded; after drying, it is affixed to the bottle with cement. The greatest objection to these labels are, that the thickness of the edge of the lable renders them clumsy looking; it would greatly improve the appearance to bevel the edge of the glass from the front backward till the edge is reduced to the 64th of an inch in thickness. Another variety of label which may be mentioned with approval, is that in which the letters are transparent, while the ground work is of a pearl white, being put on by enameling and burnt in; this is much

used for reagents. Acid bottles for shop use are made with the letters blown in the glass, but are not sufficiently distinct until the raised surfaces of the letters have been ground off.

The other bottles, which are of comparatively little use, but which still must be had in every well furnished store, are tincture and salt-mouthed bottles of green glass, accurately stoppered for the proper preservation of the caustic alkalies and their solutions.

Although it is not strictly within the scope of the query, I have undertaken to answer the following, which appears to me sufficiently interesting and pertinent to this part of my subject to introduce here.

A very useful jar for those who dispense carbonate of ammonia will be best obtained by securing a handsomely-shaped stoneware bottle of quart capacity and large mouth, to which a glass stopper has been accurately ground; the weight of the lumps of the salt just mentioned, so frequently occasions the fracture of the bottle appropriated to this substance, that many give up keeping a bottle and recur constantly to their large jar, thus injuring the quality of their entire stock.

The second general topic referred to in this query is the kind of dispensing and prescription bottles to be preferred.

The distinction here made is doubtless intended to refer to those bottles used for prescriptions and those with which the ordinary demands for liquids are supplied.

For prescriptions the style of vials known as "French Square" answers a most useful purpose, combining both elegance of shape and strength in a great degree, when made with proper care; they are to be preferred to round vials for the facility and economy of space with which they can be packed together.

The lips of all vials used for medicines which are given in drops, should be made as carefully as in the case of tincture bottles. Fluted and oval bottles are particularly objectionable, the first in wanting strength, there being so many angles liable to be broken through, and the second, being easily broken and always deficient in firmness of base, are very liable to be upset.

In the vials required for prescriptions it should be rigidly insisted upon by our trade, that the capacity of this class of vials

should be twenty-five to twelve per cent. more than their nominal measure, thus enabling the compounder to put the whole of a prescription in the vial of the nominal capacity nearest to the quantity of medicine ordered.

While discussing the subject of glassware, the matter of graduated glass measures may not be inappropriately alluded to: as generally made, these are well known to the trade to be very inaccurately graduated.

An excellent set of test measures can be made by securing a number of flasks with necks of small caliber, and so adjusted that the quantity each should hold will fill the flask and half of the neck; this will secure a very accurate adjustment, and will enable any one to test his own graduated measures with great exactness and facility.

Hoping these few hasty notes will serve to direct the attention of our trade to wants which have been felt to be serious annoyances, I respectfully submit them to your consideration.

ON CORKS.

BY P. WENDOVER BEDFORD, OF NEW YORK.

QUERY 9.—Whence are the corks of commerce derived, and where are they cut? with general observations on the commercial history of corks and corkwood.

The cork-wood of commerce is derived entirely from the southwestern portion of Europe, embracing Spain, Portugal, Italy and the south of France. The yield is greatest from Spain, next from Portugal, then France, and last in order is Italy. Throughout this portion of Europe the *Quercus suber* and *Quercus occidentalis* are found in large forests, and from these two varieties of oak is obtained all the cork-wood of commerce. In Algeria the cork oak is under cultivation, the French Government having granted a concession to the Duke of Montebello, who has the monopoly of the cork forests in that country. More recently the cork oak has been introduced in Australia, but sufficient time has not yet elapsed to form any reliable judgment as to the

quality or quantity which will result. At last published accounts the trees were thriving handsomely. In California the cork oak was planted quite largely about seven years ago, and the trees are now quite large and handsome. In Florida there was, some years ago, an effort to cultivate the cork oak, in which our Government rendered considerable assistance, but I am unable to give any information as to its success or present condition. Throughout the Southern States the cork oak is frequently met with as a curiosity, but no other efforts to cultivate it for commercial purposes in this country has come to my knowledge. That it can be grown successfully in the Southern States there is no doubt, as the isolated specimens prove it; but few are willing, however, to devote the ground and labor and wait so many years for any pecuniary reward.

The cork oak is now successfully cultivated throughout Spain and Portugal by planting the acorns, and afterwards removing a portion of the young trees, when too much crowded or distorted in shape. As the trees increase in years the corky layer is examined by cutting out a square piece of sufficient size to determine the quality of the cork-wood. It is not until the tree has attained from twenty to twenty-five years of age that the cork-wood has developed sufficiently for removal, after which it is removed at intervals varying from eight to twenty years.

The corkwood is obtained by making longitudinal and transverse sections in the living tree, then carefully loosening it from the inner bark which conveys the sap. The corkwood is not always removed around the whole tree, but in sections, on such portions as, in the judgment of the cork cutter, is fit for use. After removing the cork-wood, which is from one to three inches in thickness, it is cut in convenient pieces (sometimes partially dried), put in bundles, packed on mules, and carried to the nearest town. It is then cleaned by boiling in water, scraped, to remove the outer bark, then thoroughly dried, when it is made into bundles or bales for exportation, the bales being usually about four feet long, two feet thick and from twenty to twenty-eight inches wide, and vary in weight from one hundred to one hundred and eighty pounds each; the average being about one hundred and thirty pounds each. It is then transported to the

seaports for shipment abroad. The chief seaports for exporting cork-wood are Seville, Lisbon, Oporto, Barcelona and Gibraltar. There are other ports in Spain and Portugal that export cork-wood, but these monopolize the greater part of the trade with this country.

During the year ending July 31st, 1869, there was received in the port of New York one hundred and seven invoices of corkwood, amounting to seventeen thousand three hundred and fifty-one bales, on which the valuation, as entered at the Custom House, was one hundred and fifty-five thousand nine hundred and sixteen $\frac{97}{100}$ dollars.

This, however, does not show all the corkwood that comes to the port of New York, as a large quantity of that used in New York and elsewhere is sent to other ports of entry, where factory facilities and freedom from heavy expenses are more than counterbalanced by the diminished cost of transportation by water. But little is entered through the Custom House at Boston, while I am informed that corkwood to the value of over one hundred thousand dollars was entered at Philadelphia. It may be safe to estimate the shipments of corkwood to the United States during the year ending July 31st, 1869, at thirty-five thousand bales, weighing about twenty-five hundred tons, and valued at three hundred thousand dollars. From this we may judge that the supplies to the rest of the world must be an enormous item; and this is all furnished by a comparatively small portion of Europe.

The period of collecting the cork-wood is during the months of July and August. During this time the entire peasantry of the region and from quite a distance are engaged in the various operations connected with collecting, sorting and preparing the cork-wood for shipment.*

Much of the wood is inferior in quality, but it is not the fact that cork-wood is deteriorating. Just as much cork-wood of the best qualities can be procured now as ever, while it is no less true that much is offered for sale that is inferior. Some of the largest houses in the trade purchase the cork-wood in the native

* After the cork-wood has been secured, swine are turned in to fatten on the ripened acorns or mast which have fallen.

forests, and there is no difficulty in thus securing any desired amount of the best qualities. That there is much difference in the quality of cork-wood may be judged by the price, which ranges from seven cents to fifty cents per lb., in currency, at the present time in this city. The import duty on cork-wood is thirty pr. ct. ad valorem (in gold.)

. WHERE ARE CORKS CUT?

In Europe the greater portion of corks are cut in the towns and hamlets in the immediate vicinity of the cork forests, and in the seaports of Seville, Barcelona, Oporto, Lisbon, Bordeaux, Lyons, Marseilles and Gibraltar. In Germany the small homœopathic vial cork is largely cut, while it is safe to say that in most of the leading cities of the civilized world cork-cutting is conducted as a branch of industry.

Throughout the whole cork-growing region the wood is cut by hand into the various sizes for use. For the common varieties, children are largely employed, while men of experience are engaged in cutting the finer qualities. After trimming the wood, slicing and cutting into convenient sized squares, the corks are cut, and then assorted in qualities and sizes. When assorted, they are then packed in bales varying from one hundred to three hundred and fifty gross each, and are then ready for shipment. In Germany they are frequently put up in small bales of twenty gross each. When cut in this manner the sizes must be judged by the eye, and there is consequently a lack of uniformity of size as well as imperfection in roundness of the corks. This will readily be seen by examining samples of imported hand-made corks.

Previous to 1855 all corks were cut by hand, and the exportation of corks from southern Europe was immense. Since the application of steam machinery to cutting corks in this country, the importation of foreign hand made corks has rapidly declined.

About thirty years ago an attempt was made by an enterprising New Englander to cut corks by machinery, and an establishment for that purpose was constructed in Boston; but they failed to carry out the project successfully. As near as I could learn, the failure of the machine was in delivering the corks with smooth ends and with sufficient rapidity. In 1855 cork

cutting machines were constructed that proved successful, and since that time the trade has been revolutionized. It was soon proved that corks could be cut more uniform with less wastage of material, and with vastly greater rapidity. An average day's work cutting by hand, and having the wood already cut to the proper sized squares, would rarely exceed ten or twelve gross, though in a few cases the most expert workmen would cut nearly twenty gross; while an average day's work by machine would be one hundred gross, and a single instance was told me of a lad that had cut one hundred and eighty gross in ten hours. The number cut by machine per day will vary with the kind of machine, and the dexterity of the workmen, as also the quality of the wood. There have been quite a number of cork-cutting machines introduced from time to time, but I believe they are all of two general styles. The kind most largely used (I believe) is the punching or boring machine, originally invented by J. D. & W. R. Crocker of Norwich, Conn., and since improved by them and others. This original machine cut only straight corks. Another machine was afterwards added which cut the taper cork. There have been some modifications of the machine and adaptations by other manufacturers, but it is believed that the credit for introducing steam machinery for cutting corks is due to the Messrs. Crocker. There are others who are entitled to praise for judicious modifications, but the writer omits names lest he should do injustice to some whose names are not known to him.

The principles of the two styles of machines used may be of interest, and I shall endeavor to explain them as clearly as possible. In the punching or boring machine there is a sharp steel cylindrical knife, revolving horizontally, being propelled forward to the block of cork-wood to be cut, and backward again, as rapidly as the skill of the operator desires it. The knife cuts through the block of cork-wood, and the cork cut by the operation passes through the cylinder and is carried off out of the way of the operator. This machine cuts only a straight cork, and it is ready for sale without any further operation except sorting out those in which the wood is imperfect. There is another boring machine which bores at one operation a taper cork, but requires a separate handling to remove the cork from the block. The

tapering machine alluded to previously has either a square of cork-wood or the round straight cork inserted in an adjustable lathe (which is a part of the machine) in which it revolves rapidly; it is then presented to the blade of a flat circular knife, from 24 to 30 inches diameter, which lies flat and revolves about five or six hundred times a minute. Two or more revolutions of the cork are made, which removes a thin shaving and gives the requisite tapering shape to the cork. This tapering machine is adapted to cut either a straight or taper cork, as it needs only a very slight alteration of the adjustable lathe to cut either style of cork. There are some minor details, but a five minutes' examination of the machines would convey more information than pages of written description. It is an exceedingly interesting mechanical operation, and those who have not seen it should embrace an early opportunity to do so. As the great bulk of corks used in this country are cut within our own borders, it would be well to state that among the largest manufacturers are Sparkman, Place & King; Truslow & Nostrand; New York Cork Cutting Co. of N. Y. City; Conestoga Cork Co. of Lancaster, Pa.; Torrence, Hoopes & Wills; Hammer & Butz, of Philadelphia, Pa.; Armstrong Brothers & Co., Pittsburg; R. Beeching of Boston, Mass.; Springfield Cork Co., Springfield, Mass.; New England Cork Co. of Providence, R. I.; Barnes & Co., Goodwin & Parker of Norwich, Conn.; George Millard, Bennington, Vt.; and Macready & Smith of Chicago, Ill.; nearly all of whom use the Crocker straight boring machine, or some modification of it.

In cutting the wood into corks it is first steamed for a short time, then by a circular knife cut into strips suitable for either the length or breadth of the cork. If the boring machine is used, the smooth side of the strips is then introduced, and the corks are at once bored out as closely together as can be done. The corks need only sorting, to reject imperfect ones, when they are ready for sale. These corks are straight. If to be a taper cork, the straight ones are now introduced into the adjustable lathe of the tapering machine before alluded to, and a somewhat conical shaving is taken off, when the corks are sorted and put up for sale. It is asserted by those using this machine, that it is the most advantageous and economical. When the boring ma-

chine is dispensed with, the strips of cork-wood are cut into suitable squares by hand, and at once cut into either straight or taper corks by simply adjusting the lathe which holds the cork.

The corks, when offered for sale, are usually designated by numbers from one to twenty, and in addition are called straight or taper. The largest number of any one sold are those suitable for ale and soda-water bottles, while the vial corks of various sizes, except the two smallest, are in nearly equal demand. Of the other styles of corks there are flat or specie corks of various sizes, enlarging by one-eighths of an inch.

In the manufacture of corks fully one-third of the wood is wasted. This arises from inequalities and imperfections in the wood, and the natural wastage in cutting circles out of any plane surface. This wastage has found some uses, among which the principal are in filling cushions, mattresses, the spaces between the roof and top ceiling of houses, as also the spaces in the sides of frame houses and buildings for storage of ice, while in the cork factories the coarser wastage is used as fuel.

In concluding this paper, I would add that foreign hand cut corks are in a great measure being superceded by American machine cut corks, as they are much more uniform in size and quality, and can compete successfully in price. Were cork-wood admitted free, we could export corks and compete in foreign markets. During the year ending July 31, 1869, there were entered at the port of New York four thousand seven hundred and seven bales of corks, containing (estimated) 94 millions of corks, while it is estimated that the cork-wood imported during the same period would yield over 300 million. I have appended a table showing the imports of corks and cork-wood into the port of New York for the year ending July 31, 1869, giving the number of bales, the values in gold, and the port from which it was shipped. I would acknowledge the kindness of Dr. O. S. Bartles, Inspector of Drugs at the port of New York, who furnished the statistics embodied in the table, as also to Messrs. Sparkman, Place & King, Messrs. Baldwin of the New York Cork Cutting Co., Harris Boardman of the Conestoga Cork Co., and Ira B. Sampson of the Springfield Cork Co., for information furnished.

PORT OF SHIPMENT.	CORKS.		CORKWOOD.	
	<i>Bales.</i>	<i>Value.</i>	<i>Bales.</i>	<i>Value.</i>
Seville,	2,188	\$60,030 56	4,485	\$56,601 28
Barcelona,	1,009	28,986 13	125	2,195 00
Gibraltar,	364	8,455 00	160	413 28
Bordeaux,	17	5,855 13		
Lisbon,	96	1,564 32	3,937	32,487 73
San Felin,	233	4,872 45		
Neustadt,	1	283 20		
Delmenhorst,	5	362 75		
Hamburg,	25	807 00	202	1,653 00
Bremen,	105	6,892 00	128	321 00
Marseilles,	98	1,905 00	12	116 00
Palafurcal,	95	1,702 89		
Cologne,	49	1,197 21		
Expeda,	17	2,201 00		
London,	63	1,226 19	3,326	29,866 38
Dresden,	1	186 69		
Maycau,	2	284 80		
Havre,	13	378 88		
Lyons,	75	2,098 64		
Frankfort,	1	488 00		
Rheims,	14	1,304 25		
Messina,	3	1,591 75		
Oporto,			3,844	22,712 25
Glasgow,	131	1,563 32	755	7,568 50
Edinburg,			17	187 55
Leith,			173	1,795 00
Name of port not given,	102	4,008 95	187	*
	4,707	138,516 11	1,7351	155,916 97

ON A PROTECTIVE AGENT AGAINST MOTHS AND OTHER INSECTS.

BY GEORGE F. H. MARKOE.

QUERY 16th.—What is the best substitute for camphor for the protection of woollens from moths and other insects, that will be cheaper and equally effective?

In reply to this query the writer would suggest the use of naphthaline as a substitute for camphor. It is an effective pro-

* Value included in value with corks.

protective agent against the ravages of moths and other insects among woollens and in natural history collections.

When purified, naphthaline is obtained in beautiful crystalline masses, possessing a strong peculiar odor, recalling the smell of coal-tar creosote. In its crude state the crystals are of a brown color, and the odor much more intense than when purified.

Naphthaline has been put to a thorough test by Prof. Asa Gray in Harvard College Herbarium, and in the cabinets of the Boston Society of Natural History. The results obtained in these trials were highly satisfactory and conclusively proving the value of naphthaline as a protective agent against the ravages of the destructive insects that infest woollens and the cabinets of museums.

It is very cheap, being a waste product in the distillation of coal tar for which no practical use has been found except for fuel and for the manufacture of lampblack. The only objection the writer can find to its use is its strong odor, which to many people is very disagreeable; this fact will alone prevent naphthaline from becoming a popular substitute for camphor, at least so far as its application to the protection of clothing is concerned; but for use in natural history collections it leaves little to be desired.

ON THE SOURCES AND QUALITY OF COMMERCIAL VINEGAR.

BY PRATT R. HOAGLAND, OF BOSTON.

QUERY 18th.—What are the sources of vinegar made and sold in the United States, and what relation in quantity and quality does the true cider vinegar produced bear to that from other sources?

Pure cider vinegar is an article that is hardly known to the trade. There are various manufactured articles in the market, some of them purporting to be and branded cider vinegar, but the cider part is usually on the barrel in name more than in the contents of the cask.

There are various modes in operation for the manufacture of vinegar, viz., from malt, inferior wines, &c., but that known as the beech, or German process is in most general use. This process was discovered about the year 1820, by Wangenman.

This process is undoubtedly familiar to most members of the Association, but as it may not be to some, I will give a little outline of its manufacture.

The first and one of the most essential steps is to have a tub, or vat, of suitable construction, for upon the formation of this depends, to a great extent, the success of the manufacturer. The most suitable form of tub is one about twelve to eighteen feet high, with a diameter of from four to six feet, or in about those relative proportions; into this are to be placed a false bottom and false top, the latter about twelve to fourteen inches from the top; the other about the same distance from the bottom. These are to be filled with numerous gimlet or small auger holes; through these are to be drawn cord or tow, to keep up a constant dropping and not allow the menstruum to fall through too rapidly. The space between the false bottom and top is to be packed with beech or maple shavings, having been previously macerated in vinegar. The menstruum consists of one part by measure of proof spirits (sp. gr. .941), and five (5) of water (soft, or rain water to be preferred). It is now prepared for percolation, the percolate to be returned or passed through other vats, as may be required to bring it to proper strength. This, with the addition of coloring matter as may be required, forms our white wine and commercial vinegar. This process, if the vinegar be made of proper strength, furnishes a good substitute for cider vinegar, without the tendency to become flat or dead, as cider vinegar after standing for two or three years often will. Mr. Lewis, of Boston, who in his extensive pickle manufactory consumes many thousands of gallons annually, informs me that he finds better satisfaction in using beech vinegar than he can obtain from the best cider vinegar that is to be found.

The relative amount of each kind sold I am unable to give, as I have not been able to obtain any statistics in relation thereto. Most of the samples that I have examined I have found of good strength, the beech vinegar containing from five to six per cent. of acetic acid. Some articles that I found in the market cover a much lower standard, containing from three to four per cent. of acetic acid, the standard of them being based on the price paid for them. Good beech vinegar can be

manufactured at eighteen to twenty cents per gallon, whereas true cider vinegar costs from thirty to thirty-five cents per gallon.

ON *LYCOPODIUM CLAVATUM*, LIN., AND OTHER
NORTH AMERICAN SPECIES AS A SOURCE FOR
LYCOPODIUM.

BY JOHN M. MAISCH.

The club moss, *Lycopodium clavatum*, Lin., and two or three allied species of the same genus, grow in the temperate zone of the northern hemisphere, particularly in the northern half thereof. The *Lycopodium* of commerce is mostly collected in the mountains of Switzerland and Germany; that collected in Poland and Russia is usually less handsome in appearance, and is regarded as of inferior quality.

The sporangia in the genus *Lycopodium* are situated in the axils of the leaves. Two species indigenous to North America, *Lyc. lucidulum*, Mich., and *Lyc. selago*, Lin., have the sporangia scattered along the stem, and consequently ripen but few at a time, so that these species are unfit for the collection of the sporules. The other North American species, seven in number, have the sporangia collected in spikes. Two of these are rather too small for the collection of the sporules, namely: *Lyc. truncatum*, Lin., which is common in the Northern States and Canada, and *Lyc. alopecuroides*, Lin., which is most abundant in the Southern States,

Of the remaining five species *Lyc. dendroideum*, Mich., and *Lyc. complanatum*, Lin., are perhaps diffused over the greater area, while *Lyc. Carolinianum*, Lin., is confined chiefly to the Southern States, and *Lyc. clavatum* and *annotinum*, Lin., are most abundant northward.

In Europe lycopodium is collected indiscriminately from those species which yield the largest amount of sporules, and these of a size not exceeding those of the true club moss; *Lyc. clavatum*, *complanatum* and *annotinum* are almost exclusively used. The spikes are collected during the months of August and September, dried in suitable vessels in such a manner that no loss of

sporules can occur from wind or draft, and the spores are then obtained by beating and rubbing, whereby the sporangia are ruptured; the resulting powder is then passed through a fine sieve to separate fragments of leaves, spore capsules and other accidental impurities.

To the three species mentioned, *Lyc. dendroideum* might be added in this country as a source for commercial Lycopodium, and this might be most advantageously collected in the Eastern States and in Canada. Since, however, the yield is small from the bulky spikes, it is the writer's opinion that the collection of Lycopodium in North America will scarcely pay, owing to the greater value of labor, as long as the European article of unexceptional quality can be bought in this country at from 50 to 70 cents currency per pound.

ON DRUGS AND PREPARATIONS RECOMMENDED FOR ADMISSION INTO THE UNITED STATES PHARMACOPŒIA.

BY F. VICTOR HEYDENREICH.

QUERY 11. Which of the preparations of the late edition of the Prussian Pharmacopœia are preferable to like preparations in our own; and what new drugs and preparations in that standard should be transferred to the U. S. Pharmacopœia out of regard to the numerous German practitioners in the United States?

In answer to the above query I have prepared two tables, which accompany this paper, one containing substances and preparations officinal in the Prussian Pharmacopœia, which in my experience are frequently called for; the other giving the comparative strength of preparations which are officinal in both Pharmacopœias. In regard to the first of these, I would recommend that the substances belonging to the *Materia Medica* be incorporated into the body of our Pharmacopœia, while, for the preparations, I would suggest that the plan of the French Codex be adopted, which consists in the addition of an appendix, containing such preparations of the various Pharmacopœias as are frequently used. In this manner, without any material increase in the size of the volume, the pharmacist would have a book containing all the important officinal preparations.

The Prussian Pharmacopœia is much smaller than our standard; it is simple and concise in its directions, giving in all possible cases the sp. gr. of preparations and their per centum strength. The various substances of the *Materia Medica* are divided into balsams, bulbs, barks, flowers, leaves, fruits, gums, gum-resins, herbs, woods, oils, pulps, roots, resins, rhizomes, seeds, tubers. These classes with the chemical and pharmaceutical preparations follow each other alphabetically. It contains a table of the poisonous preparations, with the maximum doses in grains and grammes which are allowed to be given at one dose and within 24 hours; if prescribed in larger doses they must be followed by the mark (!) Something of this kind would be eminently useful in our own Pharmacopœia. Sometimes physicians prescribe necessarily larger doses than usual, and the pharmacist is placed in an annoying position. The medicine may be wanted immediately, and yet caution would dictate to him not to deliver the medicine without having seen the physician. A mark of this kind introduced into the Pharmacopœia and generally adopted by the medical profession would obviate this.

In examining this subject the following preparations and formulas seemed to me preferable to those of the U. S. Pharmacopœia, and would be worthy of consideration at the next meeting of our National Standard.

Acid. Benzoic. Crystalliatum. (Scheele's process.) Prepared by boiling, in repeated portions of water, 4 parts benzoin and 1 part of lime, previously slacked, and decomposing the resulting liquors by hydrochloric acid and purifying the crystals by animal charcoal. If retained among the preparations, this process could be more easily performed by the majority of pharmacists than that of sublimation.

Ammoniacum Cuprico-sulphuricum. *Cuprum Ammoniat., U. S. P.* Powd. sulph. copper 1 pt., aqua ammon. 3 pts.; put the two together in a bottle and shake till dissolved, filter and add 6 pts. of strong alcohol. The crystalline precipitate is collected on a filter and dried without heat between bibulous paper.

Collodium. Cotton 1 pt., nitric acid, sp. gr. 1.42, 7 pts., sulph. acid, sp. gr. 1.83, 8 pts.; or, cotton 1 pt., nitric acid, sp. gr. 1.38, 8 pts., sulphuric acid, sp. gr. 1.83, 20 pts. Mix the

acids, when the mixture has cooled to the ordinary temperature add the cotton and set aside for 12 to 24 hours. Then wash thoroughly with water and dry. One part of this cotton to be dissolved in 18 parts of ether and 3 parts of alcohol, sp. gr. 0.83. This process is more satisfactory than that of the U. S. Pharmacopœia.

Ferrum Sesquichloratum Solutum. *Solut. of sesquichloride of iron*, prepared by passing chlorine through a solution of the protochloride, till entirely oxidized. This process affords a much more satisfactory result than that of the U. S. Pharmacopœia. A strong solution of sesqui-chloride of iron should be introduced into the next edition of the Pharmacopœia (it could be of such strength as to answer for preparing the officinal tincture by simply diluting with alcohol) for use as a styptic and other purposes, when required.

Electuarium e Sennâ. *Confection of Senna.* Powd. senna 9 pts., powd. coriander 1 pt., simple syrup 48 parts, pulp of tamarind 16 parts. Mix the senna and coriander, add the syrup and pulp of tamarinds, and reduce to the proper consistency by means of a gentle heat. This formula is much less complex than the officinal, and, as the purging cassia is omitted by almost all manufacturers, it could well be substituted for it.

Plumbum Hydrico-acet. *Solut.* Solut. of subacetate of lead is prepared by rubbing 3 parts acet. lead and 1 pt. of litharge (heated to drive away all carbonic acid) with 10 parts of water slowly added, and shaking frequently, until there remains but a small white residue; it is then filtered.

Kali Acetic. Solutum. A strong solution of acetate of potassa which would represent a fixed amount of the salt, would be a desirable addition to the Pharmacopœia, on account of the deliquescent nature of the salt. A solution, one fluid ounce of which contains half an ounce of the salt, has been used by the writer for several years, and found to keep without deteriorating.

The extracts in the Prussian Pharmacopœia are divided into three classes: *Thin*, having the consistency of fresh honey; *Thick*, of such consistence that they can no longer be poured

when cold, but may still be drawn into threads with a spatula; *Powdered*, prepared by evaporating to a thick extract, removing from the vessel, drying at a gentle heat and pulverising. The narcotic extracts are reduced to powder by mixing with powdered liquorice root and drying at a gentle heat. The powdered extract when finished shall have a weight double that of the extract used; and when the ordinary extract is prescribed, double the quantity of this powder is dispensed.

A great difference exists in not a few preparations bearing the same name, as the acids, solution of potassa, solution of soda, ext. aconite and many tinctures; for an examination of these I would refer to the accompanying table, No. 2.

In all formulas given the liquids are to be weighed, the Prussian Pharmacopœia not recognizing any fluid measure.

I.

TABLE CONTAINING SUBSTANCES AND PREPARATIONS WHICH ARE
RECOMMENDED AS ADDITIONS TO THE PHARMACOPŒIA OF THE
UNITED STATES.

Aqua Amygdamar. Bitter almonds, 6 parts; water, 30 parts. Alcohol, sp. gr. 0.83, 1 part. Express the oil from the almonds, powder the residue, mix it with the water and alcohol and distil 6 parts. 720 parts of this water contain 1 part anhydrous hydrocyanic acid.

Chinoideum. Chinoidin.

Elæosacchara. Powd. white sugar, 30 parts; volatile oil (whatever kind desired) 1 part. Mix well.

Elizir Aurantiorum Compositum. Orange peel (freed from the inner white portion) 6 pts.; cassia 2 pts.; pure carb. potassa, 1 pt.; sherry wine, 48 pts.; ext. gentian, ext. wormwood, ext. buckbean, ext. cascarilla, of each 1 pt. Macerate the first three in the wine for eight days. Express and filter; in the filtrate dissolve the extracts.

Extract. Aloes. Prepared by macerating in cold water, evaporating to dryness and powdering.

Extract. Mezerei Spirituosum. Prepared by macerating in alcohol, sp. gr. 0.83, and evaporating to the consistency of a soft extract. It is used for the ung. mezerei.

Extract. Rhei Compos. Ext. rhubarb, 3 pts.; ext. aloes, 1 pt.; jalap soap, 1 pt.; water, 4 pts.; alcohol, 4 pts. Soften the extracts in the water, dissolve the soap in the alcohol, mix, and evaporate to dryness.

Extract. Semin. Strychni Aquos. Prepared by macerating in repeated portions of boiling water and evaporating the clear liquid to a dry extract.

Fel Tauri. Ox gall and alcohol, sp. gr. 0.83, eq. parts. Mix, let stand and filter. Distil the alcohol, and to the residue add purified animal charcoal, till a small portion, when filtered, has a light yellow color; then filter and evaporate to dryness.

Ferrum Aceticum Solutum. Solut. of sesquiacetate of iron, sp. gr. 1.134; 100 parts contain 8 parts of iron.

Ferrum Sesquichlorat. Solutum. Solut. of sesquichloride of iron, prepared by passing chlorine through a solution of the protosalt till oxidised; sp. gr. 1.480–1.484; 100 parts contain 15 parts of iron.

Flor. Chamom. Vulgaris. *Matricaria chamomila.*

Fruct. Anisi Stellati. *Illicium anisatum.*

Hirudines. Leeches.

Infus. Senn. Comp. Senna leaves, cut, 2 pts.; tart. of soda and potassa, 2 pts.; manna, 3 pts.; water, 12 parts.

Kali Aceticum Solutum. Solution of acetate of potassa, sp. gr. 1.17 to 1.18, contains $\frac{1}{2}$ of acetate of potassa.

Kali Tartaricum Borazatum. Borax, 1 pt.; bitart. of potassa, 2 pts.; water 10 pts. Dissolve the borax in the water, add the bitart. of potassa, heat on water-bath till dissolved; filter, and evaporate to dryness.

Mistura Oleoso-balsamica. Oil of lavender, oil of cloves, oil of cassia, oil of thyme, oil of lemon, oil of mace, oil of orange flowers, of each 1 pt.; balsam of Peru, 3 pts.; alcohol, sp. gr. 0.83, 240 parts. Mix and filter.

Mistura Sulphurica Acida. Alcohol, sp. gr. 0.83, 3 pts.; pure sulphuric acid, 1 pt. Add the acid to the alcohol by degrees, stirring constantly.

Oleum Sinapis. Volatile oil of mustard.

Pulvis Aërophorus. Bicarbonate of soda, 5 pts.; tartaric

acid, 4 pts.; powd. white sugar, 9 pts. Each substance to be well dried and finely powdered before mixing.

Pulvis Glycyrrhizæ Compositus. Powd. senna leaves, 2 pts.; powd. liquorice root, 2 pts.; powd. fennel seeds, 1 pt.; sulphur, 1 pt.; powd. white sugar, 6 pts. Mix.

Pulvis Magnesizæ cum Rheo. Carbon. of magnesia, 60 pts.; powd. white sugar, 40 pts.; powd. rhubarb, 15 pts.; oil of fennel, 1 pt. Mix.

Sapo Jalapinus. Resin of jalap, 2 pts.; medic. soap, 2 pts.; alcohol, 4 pts. Mix, soften the resin and soap over a water-bath and evaporate till the mass weighs $4\frac{1}{2}$ parts.

Species ad Decoctum Lignorum. Guaiac. wood, rasp., 4 pts.; burdock root, cut, 2 pts.; ononis spinosa, cut, 2 pts.; liquorice root, cut, 1 pt.; sassafras wood, cut, 1 pt. Mix.

Species ad Infusum Pectorale. Marshmallow root, cut, 8 pts.; liquorice root, cut, 3 pts.; orris root, cut, 1 pt.; coltsfoot leaves, cut, 4 pts.; mullein flowers, 2 pts.; star anise, 2 pts. Mix.

Species Aromaticæ. Spearmint, 4 pts.; balm, 4 pts.; lavender flowers, 2 pts.; cloves, 1 pt. Cut fine and mix.

Species Laxantes St. Germain. Senna leaves (exhausted by alcohol) 16 pts.; elder flowers, 10 pts.; fennel seeds, 5 pts.; aniseed, 5 pts. Cut and bruise, mix well, and on dispensing add bitart. of potassa, 3 pts.

Spiritus Æthereus. Ether 1 pt.; alcohol, sp. gr. 0·83, 3 pts. Mix.

Spiritus Ferri Chlorati Æthereus. Solution of sesquichlor. of iron, 1 part; spts. of ether, 14 pts.

Spiritus Sinapis. Ol. sinapis, 1 pt.; alcohol (sp. gr. 0·83) 60 pts.

Syrup. Sennæ cum Manna. Senna, cut, 8 pts.; bruised fennel seed, 1 pt.; manna, 12 pts.; hot water, 48 parts. Macerate several hours, express and strain; to 48 parts of the filtrate add 48 parts of sugar.

Tinctura Chinoides. Chinoidin, 2 pts.; alcohol, sp. gr. 0·83, 15 pts.; hydrochloric acid, 1 pt. Dissolve and filter.

Tinct. Colocynthis. Colocynth, deprived of the seed and finely cut, 8 pts.; star anise, 1 pt.; alcohol, sp. gr. 0·83, 96 pts.

Tinctura Ferri Acetici Ætherea. Solut. of acet. of iron, 9 pts. ; alcohol, sp. gr. 0·83, 2 parts ; acetic ether, 1 pt. Mix.

Tinct. Ferri Pomata. Extr. ferri pomati, 1 part ; spirituous cinnam. water, (distilled, containing $\frac{1}{3}$ alcohol) 12 pts. Dissolve and filter.

Tinctura Ipecacuanhæ. Ipecac root, coarsely powd., 1 pt. ; alcohol, 8 parts.

Tinctura Rhei Aquosa. Rhubarb, cut in thin slices, 12 pts. ; carb. of potassa, 3 pts. ; spirituous cinnam. water, 16 pts. ; water, 96 pts. Macerate 24 hours, then express and filter.

Tinctura Rhei Vinosa. Rhubarb, cut fine, 8 pts. ; orange peel (deprived of the inner white portion) 2 pts. ; cardamom seeds, 1 pt. ; sherry wine 96 pts. To the filtered tincture add white sugar, 12 parts.

Tinct. Valerianæ Æther. Valerian, 1 pt. ; spirit of ether, 8 parts.

Unguentum Cantharidum. Contused cantharides, 1 pt. ; olive oil, 4 pts. Digest for twelve hours ; filter, when cold, and in the filtrate melt white wax, 2 parts, and stir constantly until cold.

Unguentum Glycerinæ. Starch, 2 parts ; water, 1 part ; glycerin, 10 parts. Rub the starch with the water, add the glycerin and heat the mixture until it forms a homogeneous mass.

Ung. Mezerei. Spirituous ext. of mezereon, 1 part ; simple ointment, 7 parts.

II.

TABLE SHOWING THE COMPARATIVE STRENGTH OF PREPARATIONS WHICH ARE OFFICINAL IN BOTH THE PRUSSIAN PHARMACOPŒIA AND THAT OF THE UNITED STATES.

PRUSSIAN PHARM.	U. S. PHARM.
<i>Acid. Aceticum.</i> Glacial acetic acid, sp. gr. 1·058 to 1·060.	<i>Acid. Aceticum.</i> Sp. gr. 1·047, contains 36 per cent. of glacial acet. acid.
<i>Acid. Acetic. dilut.</i> Sp. gr. 1·038, contains 29 per cent. of glacial acetic acid.	<i>Acid. Acetic. dilut.</i> Sp. gr. 1·006, contains $4\frac{1}{2}$ per cent. of glac. acetic acid.
<i>Acid. Hydrochloratum.</i> Sp. gr. 1·124, contains 25 per cent. anhydrous hydrochloric acid.	<i>Acid. Muriatic.</i> Sp. gr. 1·16, contains 32 per cent. anhydr. hydrochloric acid.
<i>Acid. Hydrochlor. crudum.</i> Sp. grav. 1·16—1·17.	

PRUSSIAN PHARM.

Acid. Nitricum. Sp. gr. 1.18, contains 25 per cent. anhydrous nitric acid.

Acid. Nitric. crudum. Sp. gr. 1.33, contains 45—46 per cent. of anhydrous nitric acid.

Acid. Nitric. Fumans. Sp. gr. 1.52.

Acid. Phosphor. Sp. gr. 1.13, contains 16 per cent. anhydr. phosphoric acid.

Acid. Sulphuric. dilut. Sp. gr. 1.113 to 1.117, contains 14 per cent. anhydr. sulphur. acid.

Ammon. Acetic. solut. Sp. gr. 1.028 to 1.032. 100 parts contain 15 parts of acet. of ammonia.

Aquæ. The medicinal waters are all distilled, with the exception of *aq. plumbi*.

Cort. Chinæ Calisayæ, must contain at least $3\frac{1}{2}$ per cent. alkaloids.

Eliz. Propriet. Paracelsi is weaker in gum resins, contains a small portion of dilute sulphur. acid.

Emplastr. Cantharid. ordinarium, contains one-fourth of its weight of powdered cantharides.

Emplastr. Hydrargyri, contains 4 parts of mercury in 21 parts of plaster.

Extract. Aconiti, prepared by exhausting aconite root with alcohol, sp. gr. 0.89 and evaporating to a thick extract.

Extract. Belladonnæ, prepared from fresh leaves, (alcoholic).

Extract. Dulcamaræ—aqueous.

Extract. Hyoscyami—alcoholic, from fresh leaves.

Extract. Opii—aqueous, evaporated to dryness.

Extract. Ratanhæ—aqueous, evaporated to dryness.

U. S. PHARM.

Acid. nitric. Sp. gr. 1.42, contains 60 per cent. anhydrous nitric acid.

Acid. Phosphoric. dilut. Sp. gr. 1.056, contains 6 per cent. anhydrous phosphoric acid.

Acid. Sulphuric. dilut. Sp. gr. 1.082, contains 10 per cent. anhydr. sulphuric acid.

Liquor Ammon. Acetatis. 100 parts contains about six parts of acet. of ammonia.

Aquæ. The medicinal waters are in part distilled, in part prepared by rubbing volatile oils with magnesia and water, in part solutions.

Cinchon. flava, not to contain less than 2 per cent. of alkaloids, yielding crystallizable salts.

Tinct. Aloes et Myrrhæ.

Cerat. Cantharidis, contains one-third of its weight of powdered catharides.

Emplast. hydrargyri, contains 3 parts of mercury in 11 parts of plaster.

Extract. Aconiti Alcoholicum, prepared from the leaves.

Extract. Belladonnæ, prepared from dry leaves, (alcoholic).

Extract. Dulcamaræ, hydro-alcoholic.

Extract. Hyoscyami—alcoholic, from dry leaves.

Ext. Opii—aqueous, thick extract.

Ext. Kramerie—aqueous, thick extract.

PRUSSIAN PHARM.

U. S. PHARM.

Extract. Rhei—aqueous, evaporated to dryness.

Ext. Rhei Alcoholicum, thick extract.

Extract. Senegæ—aqueous, evaporated to a dry powder.

Ext. Senegæ Alcoholicum, thick extract.

Extract. Taraxaci, prepared from the fresh root and leaves.

Extract. Taraxaci, prepared from the fresh root only.

Kali Arsenicosum Solutum, contains no compound spirit of lavender and is one-fourth stronger than

Liquor Potassæ Arsenitis.

Kali Hydricum solutum, sp. gr. 1.33 to 1.334, contains 28 per cent. of potassa.

Liquor Potassæ, sp. gr. 1.065, contains 5.8 per cent. of potassa.

Kreosotum solutum.

Aqua Creasoti.

Liniment. Ammoniacatum. Olive oil, 4 pts., aq. ammon. 1 pt.

Linimentum Ammoniacæ. Olive oil, 2 oz. troy, aq. ammon 1 fluid oz.

Liniment. saponato-camphoratum, solid, contains 1-24th part of its weight of aq. ammoniacæ.

Linimentum Saponis.

Natrum Hydric. solutum. Sp. gr. 1.33—1.334, contains 24 per cent. soda.

Liquor Sodæ. Sp. gr. 1.071, contains 5.7 per cent. of soda.

Plumbum Hydrico-acetic. solutum. Sp. gr. 1.236—1.24.

Liquor Plumbi Subacetatis. Sp. gr. 1.267.

Spiritus Vini Rectificatissimus. Sp. gr. 0.830—0.834.

Alcohol. Sp. gr. 0.835.

Spiritus Vini Rectificatus. Sp. gr. 0.890 to 0.894.

Alcohol dilutum. Sp. gr. 0.941.

Syrup. Ipecacuanhæ, contains one part of the root in 56 pts. of the syrup by measure.

Syrup. Ipecacæ, contains 1 part of the root in 16 parts of the syrup, by measure.

Syrup. Senegæ, contains 1 part of the root in 20 parts of syrup, by measure.

Syr. Senegæ, contains 1 pt. of root in 4 pts. of syrup, by measure.

Tinct. Aconiti, prepared from the root, 1 part alcohol, sp. gr. 0.89, 8 parts.

Tinct. Aconit. radialis. Aconite root 6 pts., alcohol, sp. gr. 0.835, 16 pts.

Tinct. Aloes. Aloes 1 pt., alcohol, sp. gr. 0.83, 6 pts.

Tinct. Aloes. Aloes 1 oz., liquorice 3 oz., alcohol 8 fl. oz., water 24 fl. oz. contains 1 oz. aloes in 32 fl. oz. tincture.

Tinct. Aromatica Acida, contains 2 parts of pure sulphuric acid in 50 parts of the tincture by weight.

Acid. Sulphur. Aromatic. Contains 3 oz. sulphuric acid in 18 fluid ounces the preparation.

PRUSSIAN PHARM.

- Tinct. Cantharidum.* Cantharides 1 pt., alcohol, sp. gr. 0·83, 8 pts.
- Tinct. Castorei Canadensis.* Castor 1 pt., alcohol, sp. gr. 0·83, 6 pts.
- Tinct. Castorei Sibirici.* Castor, Siberian, 1 pt., alcohol, sp. gr. 0·83, 9 pts.
- Tinct. Catechu.* Catechu 5 pts., alcohol, sp. gr. 0·89, 24 parts.
- Tinct. Chinæ composita.* Brown or gray cinchona 3 pts., gentian 1 pt., orange peel 1 pt., alcohol, sp. gr. 0·83, 16 pts., cinnam. water 8 pts.
- Tinct. Cinnamomi.* Cassia 5 pts., alcohol, sp. gr. 0·89, 24 parts.
- Tinct. Iodi.* Iodine 1 pt., alcohol, sp. gr. 0·83, 10 pts.
- Tinct. Myrrhæ.* Myrrh 1 pt., alcohol, sp. gr. 0·83, 6 pts.
- Tinct. Opii Benzoica.* contains no honey and a larger proportion of benzoic acid, camphor and oil of anise.
- Tinct. Opii Crocata.* 10 parts contain 1 part of powd. opium.
- Tinct. Opii simplex.* 10 parts represent 1 part of powd. opium, and is about one-fifth stronger than that of the U. S. P.
- Tinct. Scillæ.* Squills 1 pt., alcohol, sp. gr. 0·89, 6 parts.
- Tinct. Seminis Colchici.* Colchicum seed 5 pts., alcohol, sp. gr. 0·89, 24 parts.
- Tinct. Semin. Strychni.* Nux vomica 5 pts., alcohol, sp. gr. 0·83, 24 parts.
- Tinct. Valerianæ.* Valerian 5 pts., alcohol, (sp. gr. 0·89) 24 parts.
- Ung. Hydrargyri,* contains one-third mercury.
- Ung. Hydrargyri Oxydati Rubri.* Red oxide of mercury 1 pt., lard 49 pts.
- Unguent. Rosatum.* Lard 4 pts., white wax 1 pt., rose water 1 pt.
- Vinum Sem. Colchici.* Colchicum seeds 5 pts., sherry wine 24 pts.

U. S. PHARM.

- Tinct. Cantharides.* Cantharides 1 oz., diluted alcohol 32 oz.
- Tinct. Castorei.* Castor 1 oz., alcohol 16 fl. oz.
- Tinct. Catechu.* Catechu 3 oz., diluted alcohol 32 fl. oz.
- Tinct. Cinchonæ composita.*
- Tinct. Cinnamomi.* Cassia 3 oz. to 32 fl. oz. alcohol and water.
- Tinct. Iodini.* Iodine 1 oz., alcohol 16 fl. oz.
- Tinct. Myrrhæ.* Myrrh 1½ oz., alcohol 16 fl. oz.
- Tinct. Opii camphorata.*
- Vin. Opii,* contains no saffron; 8 fl. parts represent 1 part powd. opium.
- Tinct. Opii.* 1 fl. oz. represents 37½ grain powd. opium.
- Tinct. Scillæ.* Squills 2 oz., alcohol diluted 86 oz.
- Tinct. Colchici.* 16 fl. oz. represent 2 oz. of colchicum seeds.
- Tinct. Nuc. Vomica.* 16 fl. oz. represent 4 oz. of nux vomica.
- Tinct. Valerianæ.* 16 fl. oz. represent 2 oz. of valerian root.
- Ung. Hydrargyri,* contains half mercury.
- Ung. Hydrarg. oxidi rubri.* Red oxide of mercury 1 drachm, lard 8 drachms.
- Ung. Aquæ Rosæ.*
- Vin. Colchici.* 16 fl. oz. represent 2 oz. of colchicum seed.

ON COMMERCIAL EXTRACT AND FLUID EXTRACT OF CONIUM.

BY GEORGE F. H. MARKOE, OF BOSTON.

QUERY No. 6.—Are the Extract and Fluid Extract of Conium of commerce as inert as some recent writers represent, and can these preparations made by the process of the Pharmacopœia be depended upon?

In order to satisfactorily answer this query, the writer obtained a number of samples from the market, representing an equal number of manufacturers, and subjected each sample to a chemical examination, by which a pretty correct notion of their comparative richness in conia, the active principle of conium, could be obtained.

The results as given below are comparative; each sample of fl. ext. conium was treated in precisely the same way by the following process:

20 cubic centimetres of each fl. ext. conium were treated with 10 c.c. of solution of potassa, and the mixture was well shaken; then 50 c.c. of ether was added and the mixture thoroughly shaken, then allowed to stand until the ethereal solution had separated, when it was decanted, and the treatment with 50 c.c. of ether repeated until four washings had been made. These washings were mixed and 20 c.c. of a solution of oxalic acid added, and the whole carefully evaporated at a temperature not above 110° F., until the volume was reduced to about 8 c.c. This residue was thrown on a small filter, and the capsule washed with distilled water, and the washings added to the filtrate; enough water was passed through the filter to make 40 c.c. of solution. To these 40 c.c., Prof. F. F. Mayer's test solution of iodohydrargyrate of potassium was added as long as it produced a precipitate. The end of the reaction was determined by filtering a drop or two into a watch-glass, then testing with a drop of the reagent. If no milkiness was produced, enough iodohydrargyrate of potassium had been added, but if a cloudiness was produced, more of the reagent was used until it ceased to act.

The turbid mixtures were then diluted with water, until only a faint opalescence was manifested, and the quantity of water used in each experiment was carefully noted.

No. 1, 20 c.c. Fl. Ext. Conium Seed, made by Dr.		
Squibb, bore dilution to	.	4000 c.c.
No. 2, 20 c.c. Fl. Ext. Conium Leaves, made by T.		
Metcalf & Co., Boston,	.	1500 c.c.
No. 3, 20 c.c. Fl. Ext. Conium Leaves, made by the		
writer from the best Conium Leaves he could		
find in the market,	.	1500 c.c.
No. 4, 20 c.c. Fl. Ext. Conium Leaves, made by		
Tilden & Co.,	.	1200 c.c.
No. 5, 20 c.c. Fl. Ext. Conium Leaves, made by H.		
Thayer & Co.,	.	1000 c.c.
No. 6, 20 c.c. Fl. Ext. Conium Leaves, made by		
Chamberlain & Day, New York,	.	800 c.c.

For want of time, only two samples of solid extract of conium were examined. The results obtained in these two experiments are given below.

5 grammes of Allen's Extract of Conium were triturated with 20 c.c. of solution of oxalic acid, the mixture thrown upon a small filter, and then the filter was washed with sufficient distilled water to make 40 c.c. of filtrate. To this filtrate iodohydrargyrate of potassium was added, and no reaction was produced.

5 grammes of an extract of conium, which is known in the market as "Hartford Extract of Conium"—it was of very soft consistence and had a strong narcotic odor—was treated in the same way as Allen's Extract, and gave a very decided reaction with the test solution, and bore dilution with water to the extent of 1000 c.c.

The above experiments show a very great variation in the strength of the commercial extract and fluid extract of conium, which may be fairly attributed to the liability conium leaves have of easily parting with their conia, and is so much additional testimony towards confirming the results obtained by a number of recent writers, who declare the conium leaves unfit for medicinal use, while careful experiments prove the full grown unripe fruit to possess a far greater activity, and to retain their virtues for several years.

ON THE ALCOHOL STRENGTH OF THE MENSTRUUM
FOR TINCTURES OF GUM RESINS.

BY ALFRED B. TAYLOR.

QUERY 10.—What strengths of alcoholic menstrea are best adapted to the treatment of the officinal gum resins, with reference to producing permanent preparations less incompatible with aqueous diluents than the present officinal tinctures?

The officinal tinctures of gum resins are:

Tincture of aloes and myrrh,

“ assafoetida,

“ guaiacum,

“ “ ammoniated, and

“ myrrh.

Upon making tincture of assafoetida, guaiacum and myrrh with alcohol slightly weaker than the officinal article, it was found that the resulting tinctures could not be diluted at all with water without precipitation. Upon making them with alcohol stronger than the officinal, a very trifling amount of water could be added without precipitation, but perhaps not quite so much as would reduce the alcohol used to the officinal strength.

It was then thought that the addition of glycerine to the menstruum might render the resulting tinctures miscible with water, and accordingly tinctures of guaiacum and myrrh were prepared with menstrea composed of equal parts of alcohol and glycerine, of three parts of alcohol and one of glycerine, and of seven parts of alcohol and one of glycerine.

The conclusion arrived at from these experiments was, that the addition of glycerine to the menstruum was of no advantage, the soluble power of the menstruum appearing to decrease in proportion to the amount of glycerine added.

Upon attempting to make a tincture of assafoetida with a menstruum composed of alcohol and glycerine, it was found that a clear tincture could not be produced, but a thick milky looking mixture was the result.

The experiment was then tried of adding glycerine to the officinal tinctures; one fluidrachm of tincture of guaiacum was mixed with four fluidrachms of glycerine; the resulting mixture

was perfectly clear and transparent. Upon adding three drops of water and shaking the mixture, an immediate opalescence and precipitation of the resin was produced. The same result followed with tincture of myrrh, though in rather less degree. Tincture of assafœtida and glycerine are not miscible without precipitation.

The conclusion arrived at from the foregoing experiments was, that alcohol of the officinal strength is perhaps the best that can be used in the preparation of tinctures of the gum resins.

Philadelphia, Sept., 1869.

ON MASKING THE NAUSEOUS TASTE OF EPSOM SALT.

BY ISAAC W. SMITH, OF PHILADELPHIA.

In reply to query 3, 1867, as to what additions to Epsom salt will diminish its bitter and nauseous taste without materially altering its properties, I will state that, after giving the subject considerable attention and repeated experiments, the most satisfactory result was obtained by combining it with a strong infusion of licorice root and evaporating to dryness.

The following is the process that I adopted :

R Rad. Glycyrrhizæ cont. (deprived of the outer bark) ℥iv.
Aq. Bullient, Oij, vel q. s.

Mix and allow to stand, with occasional stirring, until cold ; then express through muslin, adding more water if necessary, until the residue no longer tastes, then filter ; to the filtrate add Magnesiæ Sulphas ℥iv. and evaporate to dryness over a water bath.

Each ounce of the compound represents about one ounce of the crystallized salt.

Samples of the compound and the solution are here submitted for inspection.

ON THE SUBSTITUTION OF CALAMUS AND ASARUM FOR OTHER AROMATICS.

BY JOSEPH L. LEMBERGER, OF LEBANON, PA.

In answer to query 17th, of series 1868, I herewith present

samples of aromatic powder, comp. ext. colocynth, comp. tincture of gentian and tincture of rhubarb, made without cardamom, and give as my opinion that we can readily dispense with cardamom and substitute some of our indigenous aromatics in place.

I did not make all the preparations called for in the Pharmacopœia containing cardamom, but it is my conviction, that those made and presented abundantly prove that, in view of the high price and scarcity of cardamom, some of our less costly roots can be used in place. The sample of *Aromatic Powder* is made after the following formula :

- R Cinnamon in fine powder.
 Ginger “ “ of each two troy ounces.
 Selected Calamus.
 Nutmeg, of each one troy ounce.

Mix.

Compound Extract of Colocynth.

- R Alcoholic Ext. Colocynth in fine powder, three and a half troy ounces.
 Socotrine Aloes in fine powder, twelve troy ounces.
 Resin of Scammony in fine powder, three troy ounces.
 Soap in fine powder, three troy ounces.
 Calamus selected, in fine powder.
 Asarum Canadense, in fine powder, of each one-half troy ounce.

Mix.

Compound Tinct. of Gentian.

- R Gentian Root in mod. fine powder, two troy ounces.
 Bitter Orange Peel in mod. fine powder.
 Selected Calamus Root in mod. fine powder, of each one troy ounce.
 Diluted Alcohol, Oij.

Made as directed in the U. S. Pharmacopœia.

Tincture of Rhubarb.

- R Rhubarb in mod. coarse powder, three troy ounces.
 Selected Calamus in mod. fine powder, one troy ounce.
 Clean white Sand, one half the bulk of the two powders mixed.
 Diluted Alcohol, Oij, or q. s.

Mix the powders and sand, and having moistened with one fluid ounce of Dil. Alcohol, introduce into a conical percolator and percolate two pints of tincture. Sand added to facilitate percolation.

I believe that cardamom is a stronger aromatic than either of the substitutes mentioned in the query, and for that reason the quantity of calamus is increased on that of cardamom in some of the officinal cardamom preparations.

I feel no hesitancy whatever in recommending the use of the substitutes as given, believing they will afford preparations efficient, and certainly at a less cost.

ON PHARMACEUTICAL PREPARATIONS FROM LACTUCA CANADENSIS LIN.

BY JOHN M. MAISCH.

When I accepted this query last year, it was my intention to present to the Association a fuller report based upon more reliable facts than taste. After the close of the 16th meeting, however, the season had so far advanced that vigorous specimens of *Lactuca canadensis* Lin. were almost entirely without leaves, which die gradually from the base of the stem upwards, and early in the fall plants of six to eight feet high present a very curious appearance, from the numerous dry leaves being attached to the simple straight stem, which is surmounted by a large, often loose, panicle, consisting of flowers, fruit and empty involucre, this panicle usually being supported by a few green leaves. The plant still contains a large amount of milk juice; but it was decided to collect the plants for experiment earlier in the season during the time of its most vigorous vegetation, just after the flowers have commenced to appear.

A quantity of the whole herb without the roots was collected this year in the beginning of August, and partly treated in the fresh state, partly dried. The fresh herb was expressed, then repeatedly treated with cold water and finally with alcohol; the liquids obtained possessed a strong acid reaction and a decided acidulous taste; this taste is likewise predominant after the liquids have been concentrated by evaporation.

A fluid extract was made from the recently dried herb with diluted alcohol by the process suggested lately by Mr. S. Campbell. This is of a decided narcotic odor, but destitute of bitter taste. After evaporation to the consistency of an extract, the same taste is observable. This extract exhausted by strong alcohol, or the concentrated liquid treated with strong alcohol, separates a viscous mass, which is very readily soluble in water; the alcoholic filtrate again concentrated furnishes an extract which possesses a slight but decided bitter taste. As far as may be judged from the taste, this extract ought to be equal in efficacy to the French lactucarium, the so-called thridax. Physiological experiments, however, have not yet been made with it.

It is my intention to make a similar preparation from the herb collected in the latter half of September, and if possible to have both tried in hospitals.

The nature of the free acid and of the bitter principle (probably lactucin, lactuco-picrin and lactucic acid) deserves closer investigation; I regret that my time did not permit me to pursue the inquiries in this direction. I would, however, suggest that various officinal extracts made with water or diluted alcohol might probably be improved in quality, and perhaps in stability, if gum and other inert principles were removed by treating the concentrated liquid with a sufficient amount of strong alcohol..

VOLUNTEER REPORTS AND ESSAYS.

GOLCOINE, GLYCONINE.

The bottle labelled glyconine excited some interest in the exhibition-room, at least as far as its name is concerned, and the frequently repeated question of what it was or meant may be my apology for mentioning it to this learned body. Under the name of golcoine, our literature mentioned, some two or three years ago, an ointment consisting of four parts of yolk of egg and five parts of glycerine, recommended especially as an application to sore nipples, where it not only exerted a decidedly healing influence, but did also not interfere with the suckling of the child, from the fact that it is neither poisonous nor disagreeable to the taste, while its great pliability and elasticity render it above all ointments applicable to this especial purpose.

Its recommendation by the pharmaceutical and medical press seems to have made but a faint impression upon the public, most interested in this matter, if I am to judge by the rapidity with which even its name was forgotten. Having sent a sample, labeled golcoine, to the last Exhibition of the American Institute of N. York, which I was prevented from attending personally, I had the mortification to learn, upon a later visit in N. York, that a prominent chemist of that city, who also exhibited chemicals at the present fair of this Association, had the bottle mentioned very carefully, but very promptly, removed from the exhibition-room, and thrust into some out of the way place, deeming this the smallest part of his duty as member of the Committee on Chemicals. He had, in his honest zeal, mistaken the name golcoine for glonoine, and though greatly irate at the

carelessness on my part in exposing the valuable exhibition, together with the more valuable visitors and attendants, to the danger of glonoine or nitro-glycerine, the tragical end of the bottle had also its exhilarating effect upon closer examination. Lately the same substance has been mentioned again, under the less suspicious name of glyconine, which though to me seems hardly expressive of the nature of the substance, since many others may, with equal right, claim this name, which expresses only their sweetness, unless we turn the philological somersault of affixing some value to the innocent conine ending of the word. If the writer had not such a respectful horror of authorities and established things, he would suggest *glycerodine* as the true expression of the nature of the preparation, since the constituents of the egg are all present, even if a great part of its albumen has been removed with the whites. Knowing from personal observation the usefulness of the article considered for the purpose recommended above, I would add, that time does neither destroy nor modify this healing effect of glyconine, even after an exposure of more than a year to atmospheric influence, which by *good* glycerine seems to be kept perfectly at bay, while without it the yolk, like all protein substances, is rapidly decomposed. This last fact, above all others, perhaps excluded the use of yolk in pharmacy, although it has been exceptionally employed in some disorders of the scalp, either in the shape of the entire yolk, or in that of the oil extracted from the same, as also in the shape of soap, which in Europe is manufactured to some extent.

This property of stability of this glycerole will recommend its general use as soon as it is more known.

Considering the constitution of the yolk, it occurred to me that this glyconine would form a very efficient dietary article, and would fill a vacancy which still exists, in spite of the different preparations of bran offered for sale in the drug market. They contain a large amount of nourishing proteine, but upon it alone their merit rests.

If we examine, on the other hand, the yolk of the egg, we find the yolk corpuscles and fat globules, the last named of which may be distinguished under the microscope by their less

intense yellow color. These fat globules are very rich in phosphorised matters, which may be separated by extraction of the yolk with ether, which, upon evaporation and incineration of the residue, leaves behind the superphosphates of the alkalies and of lime. The fat consists of oleine, margarine, mixed, according to Goble, with a large amount of glycerophosphoric acid, as also with cerebrin, also known as cerebric or oleo-phosphoric acid. This last named acid contains nitrogen and phosphorus, and is also found as a constituent of the brain. The presence of cholesterine, the fat of the bile, has also been determined in the yolk, which contains of it on an average 0.488 per cent.

Of the two pigments of the yolk, the yellow and the red, which both are soluble in alcohol, the red one contains iron. Besides this metal other minerals are contained in the yolk, as hydrochlorate of ammonia, potassic compounds, which greatly predominate over the chlorides and phosphates, found in the ashes only monobasic. The ashes contain as much as 70 per cent. of phosphoric acid, 1.45 per cent. of peroxide of iron, and about 0.55 per cent. of silica. Altogether we find here the constituents of the blood ready formed in the same proportion as they are contained in that fluid, besides some constituents of the brain and bile, which accounts for the easy digestibility of the yolk, its assimilation not taxing the digestive organs in as high a degree as a dietary article of a more remote constitutional resemblance. To complete this sketch of similarity we find the vitelline, a compound of caseine and albumen, easily soluble in even dilute solutions of the neutral salts, the presence of which in the yolk I mentioned, and easily convertible into peptones. As much as 17 per cent. of vitelline are present in the yolk. For practical use as a dietary preparation, I would suggest the addition of sugar to the glyconine, to render it dry and solid, while the addition of syrup would produce a pleasant tasting liquid preparation, which besides in its natural state, might be used as a vehicle for various drugs, as the tonics, &c.

OXALATE OF IRON.

BY D. S. DYSON.

This preparation of iron was first proposed for medical use by Dr. Schaeffer, of Washington City, a short time after Vogel had shown that it could be economically used to prepare a fine polishing rouge.

Dr. Schaeffer says, "it occurred to me to employ it as a source of pure oxide of iron for reduction by hydrogen or by prussiate potash. Upon reflection, however, I thought that the salt itself might be used with advantage, on account of its cheapness, simplicity of preparation, minuteness of division, and unalterability, the latter property being a rare one in the protosalts of iron."

Dr. B. F. Craig, Professor of Chemistry and Physiology, Medical Department, Georgetown College, a colleague of Dr. Schaeffer, says the result of his investigation proved highly satisfactory, and that he found the oxalate of iron to possess advantages which are not found combined in any other chalybeate preparation. Being a protosalt—a state of combination in which iron seems to be decidedly the most efficient in its medicinal action—unlike, however, the protocarbonate, the protiodide, and other protosalts of iron, it is not in the least liable to oxidation, but is perfectly permanent under ordinary circumstances. Being nearly insoluble, it is therefore devoid of the unpleasant taste, the astringency, and the irritant properties possessed by the soluble salts of iron. It is, however, sufficiently soluble in dilute acids to be readily absorbed from the stomach, and oxidizes readily in the blood, rendering up the iron in the state most suitable for assimilation. The process for preparing the oxalate, according to Dr. Schaeffer, is as follows:

Acidi Oxalici, 1 oz. Troy.

Ferri Sulphatis, 2 oz. Troy.

Aquæ Destillatæ (bull.), f. 3x.

Dissolve the acid in six fluidounces of the water whilst hot, and filter; dissolve the iron in the remainder of the water; if not entirely soluble, add sulphuric acid, q. s., to aid solution; heat both the solutions separately, and pour them together whilst

hot. A brownish color first appears, which rapidly changes to that of a beautiful yellow, the oxalate being thrown down as a precipitate.

Decant the supernatant liquor; place the precipitate upon a filter, washing it repeatedly until there be no trace of acid; then dry by moderate heat. The dose of the oxalate corresponding to one grain of metallic iron is two and one-half grains, but much experience shows that even smaller doses rapidly produce the peculiar effects of the metal.

The above is a copy of a paper written by me at the instance of Dr. Craig, and, as I thought, presented at the annual meeting of the Association in 1857 for publication; it seems, however, never to have been published. And now, as an act of justice to Dr. Schaeffer, I would ask its publication, so that I may bear testimony to his just claim of priority in suggesting the use of oxalate of iron in all cases where iron is indicated.

September 8, 1869.

REMARKS UPON THE PREPARATION OF FLUID EXTRACTS,

BY THE PROCESS PROPOSED BY MR. SAMUEL CAMPBELL, OF PHILA.

BY ALFRED B. TAYLOR.

Many of you have no doubt read an article upon the preparation of fluid extracts, published in the September number of the *American Journal of Pharmacy*, on page 385.

From the importance of the principles involved, and the bearing they are likely to have upon our National Pharmacopœia, I have thought that some remarks upon the subject might be profitable as well as interesting.

I herewith submit to your inspection samples of all the fluid extracts officinal in the U. S. Pharmacopœia, with the exception of two or three, and of several others that are not officinal, prepared by Mr. Campbell, in accordance with his suggestions. I have here also the residues from which these extracts have been prepared. Examination of these specimens will show

not only the quality of the various extracts, but also the completeness with which the different drugs have been exhausted.

The importance of long maceration as a requirement for thorough and concentrated exhaustion of a drug by percolation, is so marked and decided, and the results obtained so wonderful, that it is certainly somewhat remarkable that they have not hitherto been noticed. The theoretical idea that long maceration would be beneficial, may have suggested itself to others as it did to myself a long time since, but its immense, unexpected practical importance has not been appreciated until these experiments of Mr. Campbell.

In order to test the subject more thoroughly, and to satisfy myself fully as to the importance and efficiency of maceration, the following experiments were instituted.

Three separate portions of yellow cinchona of four troy ounces each, in moderately fine powder, were carefully displaced with diluted alcohol; one portion having been allowed to macerate half an hour (according to the directions of the U. S. Pharmacopœia in making fluid extract of cinchona;) another portion having been allowed to macerate for 48 hours; while the third portion was allowed to macerate for four days; the conditions of all being made as nearly alike as possible, in regard to temperature, packing, pouring on the menstruum, &c. The displaced tincture was carefully collected in portions of one fluid-ounce each; each ounce was then evaporated separately, and the weight of solid extract furnished by each ounce carefully noted. The following results were obtained:

Percolate No. 1.

The 1st oz. yielded of solid extract,	94 grs.
“ 2d “ “ “ “ “	80 “
“ 3d “ “ “ “ “	60 “
“ 4th “ “ “ “ “	45 “
The first pint after this yielded of solid extract,	102 “
“ 2d and 3d pints “ “ “	78 “
And 3 pints additional “ “ “	40 “

Percolate No. 2.

The 1st oz. yielded of solid extract,	185	grs.
" 2d " " " "	90	"
" 3d " " " "	65	"
" 4th " " " "	45	"
" Pint after this yielded of solid extract	115	"
	<hr/>	
	500	

Percolate No. 3.

The 1st oz. yielded of solid extract	200	grs.
" 2d " " " "	143	"
" 3d " " " "	90	"
" 4th " " " "	30	"
And 8 oz. after this, to exhaust, yielded	48	"
	<hr/>	
	511	

Upon examination and comparison of these results, it is found that the total yield of extract is almost identical in the three experiments. Four ounces of bark having yielded in one case 499 grains, in another 500, and in the third 511 grains of solid extract, being about 26 per cent.

The first ounce of percolate, after half an hour's maceration, yielded of extract	94	grs.
The first ounce, after 2 days maceration, yielded	185	"
" " " " 4 " " "	200	"
The first 4 oz. of percolate, after one day's maceration, yielded of extract	279	grs.
The first four oz., after 2 days maceration, yielded	385	"
" " " " 4 " " "	465	"

Or upon comparing the first and third experiments, the first three ounces of percolate, after long maceration, yielded as much solid extract as three ounces and two pints additional after a short maceration. It will also be observed that, after four ounces of percolate had been obtained, eight ounces of menstruum exhausted the drug that had been macerated four days, more thoroughly than six pints, where it had been macerated for half an hour.

If, upon further investigation, it should be found that the ex-

haustion of some particular articles is not complete, the passage of a small additional amount of menstruum, and the reduction of the product by spontaneous evaporation to the required measure, would no doubt successfully accomplish the desired end.

The longest time allowed for maceration in any of the experiments made by Mr. Campbell, or myself, was four days. It is possible that in some cases even a longer maceration might be found desirable, but since the results of all the experiments tried were satisfactory, no further experiment as to time was tried.

From the results of the preceding experiments, it might be thought that the use of glycerine is superfluous, since diluted alcohol appears to be sufficient to exhaust the drug; yet I believe that in this and in many other cases, it is a valuable part of the menstruum; not only from its solvent, but also from its preservative power; but whether the proportion adopted is the best one, can be determined only by experiment. It is not probable that the same proportions would be desirable for all drugs.

In regard to fineness of powder for making fluid extracts, I believe that for all of the fluid extracts at present officinal in the Pharmacopœia, a powder moderately fine, or one that would pass through a sieve No. 50, would be preferable to the one adopted by Mr. Campbell, which is moderately coarse, or one that would pass through a sieve No. 40. Almost any drug can be reduced to this degree of fineness, without involving much more labor or time than is required to reduce it to a moderately coarse powder. Of the 23 fluid extracts now officinal, in which fineness of powder is indicated, eleven are directed to be made from moderately fine powder (No. 50,) and twelve from fine powder (No. 60); these two grades being the only ones indicated.

When powders finer than No. 50 are directed, they will rarely be prepared by the apothecary, but will be purchased from the wholesale druggist, or the drug grinder, and will consequently be much more liable to be inert, impure or adulterated than when powdered under the supervision of one who wishes to prepare his own extracts.

Two of the fluid extracts of the Pharmacopœia, viz., those of hemlock and ergot, have a small quantity of acetic acid added to the menstruum; and this is a very useful addition to these preparations when made according to the formula of the present Pharmacopœia. The main object of this addition is to give stability to the alkaloids during the process of concentrating these extracts by heat; it is also incidentally useful in promoting the solubility of the alkaloids, and in preserving the preparations when finished. These objects are all accomplished by the process of Mr. Campbell, without the addition of the acid. No heat being used in the process, all danger of destruction from this cause is avoided. The menstruum being sufficient to completely exhaust the drug, no addition is required, while the glycerine is perhaps a better preservative of the finished preparation than acetic acid.

As Mr. Campbell has well said, a fluid extract should represent the drug from which it is prepared, giving the constituents, as nearly as possible, as they exist in the crude drug; and although acidulated preparations of cinchona, opium, conium, &c., may be desirable, it is at least questionable whether acetic or any other acid, whereby the natural composition is changed, is a proper addition in the preparation of simple fluid extracts of these substances.

Mr. Campbell, after moistening the drug upon which he is operating, packs it in the percolator and allows it to macerate therein for four days, after which he proceeds to displace the tincture. By this process the portion in the bottom of the instrument is subjected to a more thorough action of the menstruum than that near the top, and while the lower portion would be entirely exhausted, it might perhaps be doubted whether the upper portion was equally so, although long maceration seems entirely to loosen the soluble from the insoluble portion, while percolation merely washes out the soluble part so separated. I would suggest that the maceration should not be made in the percolator, but in a separate vessel, and that once or oftener during the maceration it would be advisable to thoroughly stir the mixture, since the upper part would naturally become dryer than the lower. By this means the maceration would be made

more uniform throughout the mass, while at the same time there would be less danger of the menstruum running in particular grooves or channels. In the case of resinous or gummy substances, previous to percolation, I would recommend the addition of sand, washed sawdust, the residue of a previous operation, or some other inert substance, whereby a freer passage may be given to the menstruum, care being taken to have the mixture uniform, and the packing in the percolator being carefully attended to.

Mr. Campbell recommends the use of glass funnels or percolators in all cases, and it is probable that there are very few instances in which they will not answer a good purpose. From the experience I have had, however, in the use of percolators of various shapes, I believe that the best form of percolator is the section of a cone having about the following proportions: its length should be twice that of its largest diameter, and four times that of its smallest diameter. If made of glass, the smaller end should terminate in a rounded funnel with a short neck; if made of tinned iron, an ordinary funnel makes a very good termination.

In view of the great simplicity of this process, and the ease with which fluid extracts can be thereby made, I strongly recommend it to the consideration of the Committee of Revision and Publication of the U. S. Pharmacopœia, believing that the best preparations possible can be thus obtained, and with the greatest economy of labor or expense.

COMPOUND ELIXIR TARAXACUM—THE BEST VEHICLE FOR QUININE.

BY P. C. CANDIDUS.

I present to the A. P. Association a formula for the above elixir, which I prepared about eight months ago at the request of Dr. Jerome Cochran, Professor of Chemistry at the Mobile Medical College. He wanted the virtues of *Prunus Virg.*, *Taraxacum*, and *Gentian*—the latter in small proportion:

R. Rad. *Taraxaci*, ʒvj., or Ext. *Tarax.* fluid. f. ʒvi.
Cort. *Pruni Virg.*, ʒiv.

Rad. Gentianæ, ʒi.
Cort. Aurantii, ʒii.
" Cinnamomi,
Sem. Coriandri, āā, ʒi.
" Anisi,
" Carvi,
" Card., āā, ʒii.
Rad. Glycyrrh., ʒi.
Syrup. Simpl., Oiiiss.

Alcohol and water, in the proportion of 1 of the former to 3 of the latter, a sufficient quantity.

The dry ingredients must be reduced to a suitable degree of fineness for percolation. Mix the alcohol and water, moisten the powder with 6 oz. of the mixture, then pack in a conical percolator, and pour on of the alcoholic mixture until 6½ pints are obtained, then add the syrup and mix them.

Dr. Cochran prescribed it a great deal, mostly as an adjuvant and vehicle of other medicines. One day a gentleman came in to take a dose of quinine. I looked about for something for him to take it in, when my eye fell on the above elixir. I mixed it for him, and to his surprise it was tasteless. As he felt doubtful of its being quinine, I mixed up some for myself, and it proved to be completely masked. I sent some to several physicians, who pronounced it a success. Dr. E. P. Gaines, and other leading physicians, have been prescribing it ever since to their and their patients' satisfaction. The quinine should be mixed with the elixir at the time it is taken, although when mixed for several days it is still tasteless.

The dose of the elixir is from half to one ounce, and it is no doubt better than the popular stomach bitters flooding the country.

EXAMINATION OF THE DEPOSIT FROM TINCTURA RHEI, U. S. P.

BY JAMES T. KING.

The yellow deposit in a storage bottle of tincture of rhubarb, U.S.P., was collected on a filter, washed, and dried until it ceased to lose weight.

Ten grains of this was treated with liquor potassæ until no more would dissolve; it was then filtered, washed and dried.

The portion insoluble in potassa consisted principally of extractive.

The filtrate was supersaturated with hydrochloric acid and filtered; the precipitate, well washed and dried, weighed 8 grs. This was treated with chloroform, and the solution allowed to evaporate spontaneously; when well dried, was weighed, giving 5.4 grs. of nearly pure chrysophanic acid. The 2.6 grs. insoluble in chloroform were destitute of any taste of rhubarb, soluble in alcohol; on platinum foil with heat it fused, then ignited, giving off a yellow flame, leaving no ash or residue. It is probably resin. Finding in the deposit so large a per cent. of chrysophanic acid, which is supposed to be one of the more active principles of rhubarb, the following experiment was made to determine what portion of the soluble matter of rhubarb would be precipitated in a given time.

One pint of the tincture of rhubarb was made according to the U. S. P. The materials weighed 840 grs. When the tincture was finished, the drug appeared to be exhausted of all matter soluble in the menstruum. The undissolved portion was dried on a water-bath, and weighed 448 grs., showing a loss of 397 grs. By previous examination the rhubarb was found to lose 10 per cent. of moisture; this would leave 313 grs. of matter in solution.

The tincture was placed on a shelf in the store room exposed to the diffused light, and occasionally opened. At the expiration of eight months it was filtered, the precipitate washed and dried. It weighed only 3.1 grs.,—about one per cent. This was treated with potassa and hydrochloric acid in the same manner as the other precipitate or deposit, and gave 1.2 grs. chrysophanic acid. The small amount of precipitate shows that the tincture would not deteriorate within a reasonable time for dispensing the same.

Before ascertaining that the deposit bore so small a proportion to the matter held in solution, I had prepared four samples of tinctures, using for No. 1 the official formula; No. 2, the rhubarb in moderately coarse powder, 2 parts alcohol and 1 part

water; No. 3, rhubarb in fine powder and stronger alcohol; No. 4, rhubarb in moderately coarse powder, 2 parts alcohol, 1 part water, and 1 part glycerine.

The materials in each percolator appeared to be exhausted, and were nearly tasteless; the tinctures 2 and 4 resembling the official preparations in appearance, No. 4 being sweet, and having the taste of rhubarb somewhat masked. No. 3, or alcoholic tincture, was of a light wine color.

These four tinctures were placed on a shelf in the saleroom, subjected to the same light and treatment as in the first experiment. Within a few days a deposit commenced forming in each,—much the least in No. 3,—and at the expiration of eight months a yellow deposit covered more or less thickly the bottom of each bottle.

Each tincture was filtered through a tared filter, precipitates washed with distilled water, dried until they ceased to lose weight, and weighed.

Deposit in No. 1, light yellow color, 4.5 grs. to pint.

“ “ 2, yellowish-brown color, 2.4 “ “

“ “ 3, reddish “ 2.0 “ “

“ “ 4, yellow “ 4.4 “ “

These deposits were examined only qualitatively. Nos. 1 and 4 gave indications of considerable chrysophanic acid, No. 2 much less, and No. 3 but a trace.

It is evident that a tincture made with the stronger alcohol will retain all the active principles in solution, or, if so much alcohol would be objectionable, a tincture made with two parts alcohol and one part water would be nearly as permanent.

Middletown, N. Y., Sept., 1869.

NOTE ON RHUBARB.

FOR 1869.

BY EDWARD R. SQUIBB, M.D.

A note upon Rhubarb, presented at the last meeting of the Association, may be found in the Proceedings for 1868, at page 452. The market for this drug during the past year has under-

gone one of those changes which are so rarely met with as to warrant, if not to require, that the subject should be presented again at this meeting. It may be stated in few words, as a general fact, that the quality has very much improved, and the price for the better grades has very much declined. There is now in the New York market no difficulty whatever in getting rhubarb which is as good for medicinal purposes as rhubarb can be, for less than half the price at which it was then sold. Or rather, the rhubarb now offered by several New York importers at a very moderate price could not then be had in this country, and even in European markets was both high and scarce. Indifferent and bad rhubarb is as plentiful as ever, and also at lower prices; and the Custom House inspection seems to have run down also, for the writer knows of an instance in which a large lot of rhubarb which passed the Inspector of Drugs, and after remaining unsold for some time, finally brought one dollar a pound, on a credit of four months. As at least sixty-seven cents of this was duty, thirty-three cents was left as the market value of the rhubarb. What is done with the large quantities of these grades which are admitted into our markets in defiance of law, is a subject upon which we are at liberty to speculate.

In marked contrast with all such, however, the abundance of the better qualities may be more prominently noticed with more satisfaction, and the writer congratulates the Association upon the present prospect of unexceptionable rhubarb for the future at very moderate prices; and if we who are assembled here as representatives of the demand, do not run the screw of price away down, and put just the same pressure upon these moderate prices that we did upon the high prices, our supply will be sure and safe. If we do press for shades of price as we did before, and, through the pernicious channel of brokers and brokerages, squeeze and manipulate the market to the utmost extent, we shall soon have but the dregs as we had before.

No reduction of prices can ever be of much avail to the consumer in such articles as this, so long as the trade is done through orders to brokers to buy and powder to the best advantage. It is not the fault of brokers that their business is ruining the markets, and ruining itself, even, by over-competition. Neither

is it their fault that they are the natural enemies of the legitimate importer and the reputable trader. But it is our faults who employ brokers, and tacitly urge them to doing for us what we could not and would not do for ourselves. The above mentioned rhubarb at one dollar a pound was bought by brokers who are known never to act for themselves; and if the real owners be not represented in this Association, it is still within the sphere of this Association to control the demand for this quality of goods through these sources. There is another natural enemy to fair legitimate healthy trade in quality, which grows and flourishes within the influences of this Association, and by its invitation and encouragement, and whose effects are well illustrated by such an article as rhubarb. This is the travelling agent or "drummer," who sells goods by name, sample, and price, and saves purchasers ever so much money and trouble. This is but a private broker, whose salary, or percentage on sales, is but a brokerage in disguise, and he is employed, too, by many who inveigh vigorously against the same rose which smells less sweet under the other name.

The hurtful influence of this artifice of over-competition is no more justly chargeable to the agents nor their employers than in the other case, but is very justly chargeable to us, for their avocation would diminish with the profits accruing from it, and these are easily within our control. Our responsibility for the quality of the rhubarb we buy embraces all these points, and it is useless to try to evade this responsibility. The pharmacist who buys an important drug without first seeing it in a condition in which knowledge and judgment can be accurately and critically applied to it, must do so entirely upon the reputation of the seller; and low prices will generally make a pretty good reputation. The writer presents herewith three samples of powdered rhubarb shown both upon yellow paper and upon the dark blue paper on which the samples are usually so artistically shown. Two of these are samples of rhubarb powdered by the writer, and all are confidently believed to be free from any admixture whatever. One sample is powdered from selected and carefully prepared rhubarb to be alluded to hereafter, and is worth \$4.50 per pound. No. 2 is powdered from an inferior grade of large flat rhubarb,

very much worm-eaten, and not fit for ordinary medicinal use. No. 3 is from a still lower grade of rhubarb. No. 2 is sold at \$2.50, and No. 3 at \$2.25, and No. 3 has been preferred to No. 2 at the same price, and when these two samples were presented together to the writer, he too gave a prompt and decided preference to the wrong grade. The point which it is desired to make here is, that no ordinary judgment is at all to be depended upon in the selection of powdered drugs. If these three samples of rhubarb were held by different houses, few if any buyers could distinguish the difference on going from one house to the other, and a difference in price of ten cents per pound would probably sell any one of them against the others. If the exhibition of these samples, all of high market grades, does not prove how unsafe it is to buy rhubarb, or indeed any other drug, in powder, it seems quite useless to try farther.

The writer wishes next to direct the attention of the Association to three cases of very good rhubarb on exhibition at this meeting, and has had them brought into the audience room for critical inspection and illustration. The first small half-picul case is from the house of W. H. Schieffelin & Co., of New York. It is marked "mountain rhubarb," a designation never seen by the writer before. It is in moderate-sized pieces, clean, sound, and well trimmed. When bored in the centre the odor is aromatic, and the color and texture is good and pretty uniform, but it is very perceptibly damp.* One of the cases of this same lot, very similar to that here shown, was bought by the writer about a month ago, and every piece critically bored and examined. The entire neat weight was 90 lbs. This yielded 79½ lbs. of perfectly sound pieces free from serious discoloration, and of uniform good quality. Of this 19 lbs. was separated, of small,

*Since the last meeting the writer has had made, by Messrs. Geo. Tieman & Co., surgical instrument makers, on the corner of Chatham and Chambers streets, New York, a simple little instrument for boring rhubarb. This instrument, which is here shown, is in imitation of that used by the Russian inspectors, or at least makes a similar depression, and one the sloping sides of which permit a critical inspection of the piece bored. The boring should penetrate to the centre of the piece, when, with a little experience, it is more satisfactory than breaking, is more neat and cleanly, and damages the pieces less.

good-shaped, fine-looking lumps, which, though no better than the remaining $60\frac{1}{2}$ lbs., might be considered carefully selected rhubarb, well adapted to sale in the lump, for the distinct purpose of chewing in dyspepsia, etc. The discolored and unsound lumps and borings weighed 10 lbs. 5 oz. These lumps were all split open by the lever described last year, and the dark and unsound portions removed by a gouge. The yield of good sound rhubarb by this was 7 lbs. 5 oz., the remaining 8 lbs. being considered quite worthless. The total yield from the 90 lbs. was therefore 89 lbs. 13 oz., or 86 lbs. 13 oz. of good rhubarb. The 67 lbs. 13 oz. was powdered with a loss of nearly $5\frac{1}{2}$ per cent. from dampness, and the powder is exhibited in the sample No. 1, previously referred to. This powder is considered entirely unobjectionable, and that such a powder when seen separately is scarcely distinguishable from one of half the value, should be a lesson to all dealers in drugs.

The second small half-picul case is sent to the Association by Messrs. Dodge & Olcott, of New York, and, like the other, is one of a lot of eight or ten cases. This is even brighter and handsomer in external appearance than the first; is of the flat variety, and presents an exceedingly nice appearance, well peeled and uniform. Upon boring it is found sensibly dryer than the first, equally uniform in color and texture, and about equally sound and free from discoloration. A lump here and there is seen to have one or two worm holes, but the chief and most important distinction between this and the first case is that it is less aromatic,—a point in which both are deficient. The size and shape of the pieces in this case are considered rather more saleable than those of the other, and it has been preferred by brokers as better adapted to being made into Turkey rhubarb. The price of both these lots is \$2.50 currency,—a price at which no one should complain, for the quality is unexceptionable. Another lot was seen in the New York market, belonging to Messrs. Dix & Morris, and a fourth in the hands of Messrs. B. W. Bull & Co., neither of which was much below these in intrinsic value, though less showy.

The third case exhibited belongs to the writer, and is part of a lot of five cases imported by Messrs. Dodge & Olcott. This

is not quite as fine in appearance as either of the others, though well peeled, uniform, and good looking. An occasional piece shows a worm hole or two, on close inspection, and the lumps are decidedly heavier. Upon boring, the color is uniform and good, but darker than the others, and the texture is more compact. It is also less dry, but the conspicuous difference is in the odor, which is much more aromatic and finer. Every lump in the case has been inspected by the writer, and it is separated into three grades of quality. The best portion, and that which is considered as select, contains 81 lbs. The second portion, which is intrinsically nearly, if not quite as good, weighs 44 lbs. The dark pieces, which are considered worthless, weigh 3 lbs. 14 oz., and the borings weigh 3 lbs., making 131 lbs. 14 oz. in all. This is considered the best of the three cases. This also cost \$2.50 per pound, but has about two days' labor upon it as it now stands. All three of these cases are damp, and the latter the most so, which accounts for the darkness of color. As they dry, the color will improve. It is a curious circumstance in connection with the rhubarb market of the past year, that much of it is so damp, and loses so much in powdering. As the curing and drying process at the place of production must necessarily be a slow one, this is taken as evidence of its being hurried into market a little prematurely. It is highly probable, too, that this dampness invites the attack of worms, as it is very unusual to see very dry rhubarb with worm holes. The difference in the loss by powdering, from dampness, is so remarkable that it may be interesting to give some statistics upon this point. The dampness varies in different packages, but appears to be greatest in the lower grades.

In 1866, the writer powdered fourteen parcels or chests of rhubarb, the lowest or minimum loss being 0.82 per cent., and the highest or maximum loss 3.4 per cent. The average loss for the year on the fourteen cases was 2.08 per cent.

In 1867, fifteen lots were powdered. Minimum loss 0.09 per cent., maximum loss 2.15 per cent., average for the year 0.97 per cent.

In 1868, the first parcel of this damp rhubarb was met with. It was powdered for a Boston house, and lost 8.91 per cent.,—a loss never before met with, and giving the writer much uneasi-

ness and trouble to account for it, fearing some carelessness or some mistake in the mills. Leaving this out, nine parcels were powdered in 1868, the minimum loss being 0.58 and the maximum 2.99 per cent., and the average loss for the year 1.27 per cent.

Thus far in 1869 ten parcels have been powdered, five of which were old rhubarb, and five of this damp kind. In the first five the minimum loss was 0.62, the maximum 1.76, and the average loss 1.24 per cent. In the last five the minimum loss was 5.5, the maximum 10.32, and the mean or average 7.91 per cent. The rhubarb thus powdered embraces all grades of quality, except perhaps the very lowest; for the writer cannot, or rather has not refused to powder for druggists all grades of goods that are not positively worthless, provided he be not asked to do any "mixing" or "bringing up color," or other forms of positive adulteration. Yet it may be usefully asked in this connection what would be the moral difference between powdering a high grade of rhubarb (or any other drug) mixed with 10 per cent. of English or American inert rhubarb, and powdering a lower grade of damaged or worm-eaten not pure, the intrinsic value being 10, or say even 20 per cent. below the first. The powder of the last is as bad, or even worse than the powder of the first, and therefore the harm which may be done by a bad medicine may award the preference to a fraudulent, or rather to the *more* fraudulent practice; because both are fraudulent, if not equally so. And all concerned share in the fraud.

This unusual dampness in rhubarb at this time leads the writer to the inference that it has been hurried into the market at an earlier stage of the curing process than is usual. We, or rather this writer knows very little about rhubarb, and has to find his way by inferences and deductions. The varieties of the plant yielding it; the place and mode of collecting or cultivating, or whether cultivated or not; the proper age or natural condition of the root when taken; the methods of preparing, drying, and putting up for commerce,—are all unknown to the writer. But by cross-examination of the drug as met with for a series of years certain testimony is obtained, which may or may not be evidence. The difference in form, size, shape and structure lead to the inference that many varieties of the plant yield the drug. And

the commercial channels through which it comes indicate considerable differences in locality, climate, etc. The age at which it is taken from the ground must be far from uniform, as the shrivelled, mucilaginous, slender pieces are evidently young and succulent roots, whilst those which are very light-colored and gritty, and which contain little soluble matter, are as evidently too old. Maturity and average excellence must lie between these extremes. When taken from the ground the bark of the root is more or less perfectly removed and the ends and angles cut off, and a hole is pierced, not bored, through one end of each piece. Through these holes a string prepared with some kind of tar is passed, and the pieces thus threaded on the prepared string are hung up to dry, probably in the sun. As the drying progresses, the roots contract more or less in proportion to their structure and age. By this contraction the string is grasped more or less tightly, and the tar squeezed out of it into the root; and the quantity of tar on the string, and the amount of pressure exerted to compress this into the root, are indicated by the greater or less extent of blackened root around the string hole or canal. It is comparatively rare to find a shrivelled piece of root that has lost much in size, as indicated by its shape, which has not the piece of string tightly grasped in the canal. But it is much more common to find the older, light-colored gritty pieces, which are not, or are but slightly shrivelled, free from all vestige of the string except the canal and the discoloration. Indeed, it may be said that as a rule the mature pieces rarely contain the string; or if it be in, it is so loose that it may be pulled out. When the string has been tarred too much, it causes a kind of rotting process to occur around it; or when it is tarred too little, by the absorption and holding of water, it seems to produce the same rotting effect, and these often extend from the canal to the centre of the root, and start the discoloration, which is probably a kind of fermentation, there. This tarring of the string appears to have two objects or effects: first to keep off insects by the azymotic influence; and next to preserve the string from rotting and from holding moisture during the long process of drying. When dry, those pieces which will not slip off the string have the string cut, and in the final trimming of the root before

separating into grades for packing, the string is cut off close. Now if the drying process be interrupted very much too soon, only the external shell of root becomes dry, and this shell will be of various thickness, proportionate to the size of the root and the time of drying; and the roots when thrown together in a mass in this condition will "heat," and undergo a fermentation that will destroy or damage the portions which have moisture enough for the process of fermentation. Hence the rottenness and discoloration of so many of the pieces which appear well on the surface. This rotten discolored portion is commonly much less compact than the shell, and is very deceptive in its apparent weight value. Hence a rhubarb which has a sound shell of not over one-fourth its volume will, when dry, give a powder of fine appearance, because this one-fourth in volume of compact texture may represent three-fourths of the total weight, the fermentation or "heating" having carried off the remainder in the form of gases and vapors. And the portion left, which yields still the fine beautiful powder in such a large proportion to the whole, would be comparatively good and valuable but for the circumstance that the fermentation within, and this percolation by the resulting gases and vapors, so changes its medicinal properties, and so drives off the aromatic properties, as to render a handsome looking powder comparatively worthless. The peculiar odors of medicinal drugs are probably their most characteristic properties, and these are so easily dissipated or diminished, not only by fermentations, but by faulty processes of drying and preservation, that they become important indications of value, and particularly so in such delicate sensitive substances as rhubarb.

The drug hurried into chests at the place of production, or nearer the seaports, before it is dry, or while still fermenting, and in this condition enclosed, not hermetically, but almost so, in sheet lead, and placed in the hold of a vessel, suffers another most trying ordeal. Every change of temperature precipitates or absorbs moisture within the sheet lead, and thus the hurtful reactions, which might have but just begun or be nearly ended, are stimulated to renewed energy, so that insects are produced and multiplied upon every possible scale from slight damage up

to total destruction. There is one other difference in commercial rhubarb which may be worth noticing. At times the surface of the lumps looks dry and clean, but of a rather bright brownish-yellow color, except where the bark has escaped removal. In other lots this same condition of freedom from dust or powder exists with a faded appearance, as though the lumps had been washed, or at least rinsed off and dried. In other lots, again, the surface is covered with bright yellow powder, which is either so well rubbed on, or so well obtained by attrition of the pieces upon each other, as to cover even the black patches of bark. Why all is not prepared alike it is difficult to understand, but one thing has been observed, and that is that rarely, if ever, the good grades are found without this powdered surface, while low grades are sometimes without and sometimes with.

In conclusion, it may be remarked that it is still unknown what becomes of the old-fashioned rhubarb which ten years ago reached the market through the Russian Government sales. It is never seen either alone or mixed with other grades in any proportion; and the attempts to imitate it are rarely successful in deceiving any one except the consumer.

It is suggested that the samples of powdered rhubarb presented herewith be referred, with the rhubarb not powdered, to the Committee on Specimens.

Brooklyn, Sept. 2, 1869.

COLLODION.

BY FREDERICK C. MUSSGILLER, OF BROOKLYN.

The official collodion is liable to at least two practical objections. The first is that it contains too little gun-cotton. And the second is that for surgical purposes, whether used of the present strength or stronger, the film contracts strongly, and is very liable to crack and present sharp edges, which irritate the parts to which it is applied, and favor the separation of the film at an earlier period than that at which it separates by reason of the cutaneous transpiration beneath it. The cantharidal collodion is also liable to the same objections, besides not contain-

ing cantharides enough to secure the effect for which it is used. The addition of more gun-cotton, of course, remedies the first objection; and the addition of a small proportion of castor oil or glycerin, or other non-drying substances, as is well known, render the film flexible and tough; but how much of either is proper or necessary, and how they are to be used, has not been well or accurately determined. In view of the approaching revision of the Pharmacopœia, a series of experiments upon the points here raised were undertaken, and the writer offers the following formula to the Association as a voluntary contribution:

Collodion is applied to two distinct uses in surgery. In one, its contractile force is rendered available in the compression of small tumors, etc.; in the other, it is used as a protecting coat or covering to prevent mechanical irritation and access of the air. The first use of course requires that the film should contract as much as possible, whilst in the second, and by far the most general use, the contraction is objectionable. The recent British Pharmacopœia meets this difficulty by providing two kinds, one called simply "Collodium," the other "Collodium Flexile," the latter containing Canada balsam and castor oil. The Paris Codex has only one kind, and uses castor oil alone. Glycerin, where properly used, is considered by some writers better than either, but it cannot be used as quoted in the U. S. Dispensatory, from M. M. Cap and Garot. It is suggested that the U. S. Pharmacopœia supply two kinds, the flexible to be called simply collodium, but the old kind, which is comparatively little needed, to be called collodium contrahens. The first may be prepared as follows:

Take of pyroxylin or gun-cotton, eighty-six grains.

Castor oil, eighty-six grains (or glycerin, sixty grains.)

Stronger ether, three and a half fluidounces, or two troy-ounces and two hundred and six grains.

Stronger alcohol, one fluidounce, or three hundred and seventy-six grains.

Dissolve the castor oil (or the glycerin) in the stronger alcohol, add the ether to the solution and dissolve the gun-cotton in the mixture by shaking. Should it contain visible floating particles, set it aside for a few days, and decant the collodion

from the sediment. Collodion is a nearly colorless opalescent liquid, of a syrupy consistence, very liable to loss by evaporation, and dangerously inflammable. A small portion, say twenty or thirty grains, weighed in a counterpoised corked vial, and then exposed to spontaneous evaporation by removing the cork and laying the vial on its side till dry, loses ninety-one per cent. of its weight in four hours.

In comparing the formulas of some of the modern Pharmacopœias, no two were found alike, and the following are the percentages by weight of pyroxylin :

The U. S. Pharmacopœia gives 3.50 per cent.

“ British “ “ 2.60 “

“ French “ “ 7.00 “

“ Prussian “ “ 3. “

And the formula above given 5. “

of pyroxylin. Specimens of the present official U. S. Pharmacopœia Collodion, of the British “Collodium,” and “Collodium Flexile,” of the French, of the Prussian, and of the formula here proposed, are presented herewith, as well as specimens showing the effect of larger proportions of glycerin. All have been tried by the writer upon himself, and that which appears to yield the most durable and flexible film in summer weather is the collodion containing five per cent. each of gun-cotton and castor oil. It is observed that the smaller proportion of gun-cotton renders the film more contractile, and therefore for this variety the small proportion of the British Pharmacopœia is recommended. In the writer's practice the cantharidal collodion has for some years past been increased, in the proportion of cantharides used, by ten per cent., but it is doubted whether this be a sufficient increase. It should always be made flexible or non-contractile, and therefore requires more gun-cotton. Specimens of both proportions are presented herewith :

The addition of a proportion of phenols, or carbolic acid, to the flexible collodion proposed, will often be found very useful and important. From one to ten per cent. of the coal-tar creasote, or impure carbolic acid, may be conveniently added, and this mixture yields a film well calculated to replace many of the more complex and clumsy “carbolic acid plasters” in use.

List of Samples of Collodion.

Number.	Percentage of Gun-Cotton.	Percentage of Glycerin.	Percentage of Castor Oil.	Percentage of Canada Balsam.	Percentage of Cantharides.	Percentage of Impure Carb. Acid.	Remarks.
1	3.50						Strictly official.
2	3.99						10 p c. increase.
3	4.4	2.48					Clear.
4	4.4	3.					Slightly cloudy.
5	4.4	3.7					Cloudy.
6	4.4	4.4					Slightly milky.
7	4.4	4.62					Milky.
8	4.93	4.93					Milky.
9	3.						Prussian Pharmacopœia.
10	2.6						British Pharmacopœia.
11	2.6		2.65	5.45			British Flexile.
12	7.00		7.00				Paris Codex.
13	5.		5.				Best flexible film.
14	4.4		4.4				
15	7.53	7.53					Milky and dense.
16	7.53	5.					Slightly milky.
17	7.53	3.76					Clear.
18	1.9				$\frac{1}{2}$ grain to a minim.		Strictly official.
19	3.				6-10 grain to a minim.		10 p. c. Canth. more.
20	5.		5.			1	Phenated.
21	5.		5.			2	"

It is suggested that all these specimens be referred to the Committee on Specimens for report.

Brooklyn, Sept. 2d, 1869.

COMMUNICATION ON EXHIBITION OF SPECIMENS.

NEW YORK, Aug. 31, 1869.

HENRY W. FULLER, Esq., Local Secretary, etc., Chicago:

Dear Sir,—The report of the Committee on Specimens of the American Pharmaceutical Association, for the year 1868, appeared to me to be particularly important, for the reason that it called attention to the fact of a want of interest existing in our country in crude pharmaceutical drugs. The exhibition of last year was liberally supplied with chemical and pharmaceutical preparations and specialties of various kinds, while it contained only a single case of rhubarb and a few specimens of cinchona barks, all of which were from the hands of two well-known manu-

facturers. The drug trade was not represented in any article on exhibition in the Convention,—an evidence, it would seem, of the assertion that there has always been less regard for crude drugs in our country than in any other, and that our Association, like all similar bodies, has been so devoted to art, and to the progress of chemistry and pharmacy, that it has overlooked the fact that a recurrence to elementary matters is important,—the more so, because all standards of material goods are comparative. Some of our oldest and most approved remedies are passing out of use. The course of jalap has been downward for years, and our supply of rhubarb, a most important article, for which we have no good substitute, has grown less and less reliable.

An essential fact seems to be overlooked: that, while we are advancing in chemical and pharmaceutical knowledge, and in the supply of all drugs which are the result of cultivation, good qualities of drugs which are the product of nature, without culture, are becoming more and more difficult to obtain. As pharmaceutical education advances, there is an increasing demand for choice goods of this sort, with no corresponding production; and deterioration in the qualities of many important varieties is said to be due to the carelessness of persons employed in gathering, who are intent only upon obtaining a present supply, regardless how they depreciate that of succeeding years. In the meantime we are pushing our unsightly and inferior drugs out of view, by substituting in their places fluid extracts and other preparations, which are in many cases little better than nostrum specialties. An Association like ours should discourage the use of all manufactured specialties, because they tend to lower the character of the profession, and, as a whole, these preparations are not reliable. We should promote interest in, and knowledge of all natural products, which can be done in no better way than by taking care to exhibit, from year to year, samples of actual supply. Such samples being of the present, will always have a present interest beyond any mere cabinet curiosities. Goods can be better exhibited *en masse*, as they occur as merchandise in trade, than in any other way, as Dr. Hoffmann has suggested; but the area of our country is very large, and while the present

policy of our Association of annual Conventions, in distant localities, continues, any various display of this kind will be impracticable, and we shall have to be content with samples of stock and market supply of fine, as well as inferior goods, that may be presented.

Messrs. Gehe & Co., of Dresden, in Saxony, have forwarded to our address a case of samples for exhibition in Chicago, which are daily expected; and we will furnish some seventy-five varieties of crudes, now in stock, which we will consign to you within a few days, as a beginning; and henceforward, if we can impress upon the trade the importance of this subject, as also the policy of preserving samples of all goods that may be offered in market, we can present these to the Association for inspection or reference, and preservation, when advisable, as very many goods are continually sold in market that would surprise our pharmacists, who believe a good law for the inspection of imported medicinal drugs *does exist*. In conclusion, I wish to say I regret I did not have the pleasure of seeing you in Chicago, on my way to Omaha in July, and that a recent unexpected visit to California did so detain me that, having just returned to New York, I cannot spare the time to attend the Convention of this year.

With great respect, I am

Yours, &c., D. C. ROBBINS.

PHARMACY.

BY HIRAM VAN SWERINGEN, FORT WAYNE, IND.

This being the time appointed for the consideration of the revision of the United States Pharmacopœia and the legal regulation of the practice of pharmacy, and as any approximation to a satisfactory result of the deliberations of this honorable and learned body must depend upon the healthy digestion of the ideas, experiences, suggestions and theories of its members, it behooves each of us to cast our several mites into the great crucible of pharmaceutical science, that their virtues may be brightened and eliminated by separating them from their dross, so that at length they may emerge, as it were, upon the tranquil

waters of fixed principle, and float quietly down the stream of time freighted with blessings to unnumbered generations of the human race. The facts of the science of pharmacy which have been already established and which are rapidly accumulating, are of themselves full of interest, and many of them of the highest practical importance. The speculative reasoning on these facts may, or may not be worthy of equal confidence, but very much of it will be found to be rational and satisfactory, and will continue to be held in high esteem until some better solution shall be given to the problems which pharmaceutical records have left unexplained.

The revision of our country's standard of medicinal preparations is a subject of no small importance. It is a matter, though entirely in the hands of the medical and pharmaceutical professions, in which the public are or ought to be interested. Among the many contributions to the advancement of pharmaceutical science during the last ten years, it will be no easy task upon the part of the committee to exercise such discrimination as will result in the choice of only those which are most worthy of confidence. Quite a number of remedies and preparations which were considered useless and obsolete, and were dropped in former revisions of our Pharmacopœia, have since been discovered to possess virtues which should entitle them to reinstatement. In our next edition of the United States Pharmacopœia I should be pleased to see incorporated, in proper arrangement and in a comprehensive and unabridged form, the Pharmacopœias of Europe and of the hospitals of her cities, not only for convenience of reference and the accommodation of American pharmacists and European physicians practising in this country, but for the purpose of serving as an incitant to active research into the merits of each one claiming attention. Let us be liberal! Let us represent the true American mind and heart as the best means of promoting the interests of our science, and a kindly interchange of thought with our sister countries. To be a "*United States*" Pharmacopœia, it should represent her varied population. Let the United States Dispensatory of eighteen hundred and seventy embrace within its lids a *world* of pharmacy, abounding in information upon every subject having a direct

or indirect bearing upon the science, and I venture the assertion that her progress for the next decade of years will be unprecedented. What matter should such an edition be expensive;—where is the American pharmacist but would purchase at any cost? I do not wish to create the impression that I discountenance fidelity to our own Dispensatory,—by no means. I consider it right and proper for each nation to have a Pharmacopœia peculiar to itself, yet I *do* believe the old adage, “*two heads are better than one*,” to be as applicable to nations as to individuals. I have long indulged the hope that the day is not far hence when this Association may be enabled, by the assistance of our government, to lay out a suitable tract of land for the formation of an “American Pharmaceutical Garden,” for the purpose of properly cultivating all such pharmaceutical products as may be adapted to the soil and climate, and to foster the culture of all those products for which we are at present dependent upon other countries. I have no doubt but that scientific horticulture has much to do with the properties and effects of medicinal plants, for if the health of the child is in a great measure dependent upon the health of the parent, so is the health of the plant dependent upon good seed and healthy cultivation.

Of the vegetation of past eras, we can only judge from the fossil remains found in the solid rocks; and, comparing that of the coal strata with what now exists, we are warranted in concluding that this country has at some previous period of the world's history nourished a more luxuriant and gigantic vegetation. It is supposed by some chemists and geologists that coal is just as much a mass of altered plants as peat is; consequently, when we consider that there are numerous beds of coal in this country, measuring ten, fifteen, and twenty feet in thickness, we can easily conjecture what an immense mass of vegetation has been compressed into this one formation. This mineral being composed chiefly of carbon, hydrogen and oxygen, the same elements which enter into the composition of plants, and revealing in its mass evidence of vegetable structure, no doubt can be entertained of its organic origin, but whether or not those medicinal plants which now appear to be indigenous to foreign countries contributed, at that day and age of the world, to the formation,

in *this* country, of this mass of vegetable material, I am not prepared to determine.

It has, however, been satisfactorily demonstrated that many of them can now, by proper management, be cultivated in this country. It might be considered very appropriate for me, at this stage of my remarks, to observe that we as an Association, whose object is the development and pursuit of facts for the advancement of our science, too often disregard the indulgence of our imaginations, which would not unfrequently lead us to *reality*, to be attained through no other agency.

Indeed, *chimera* is the handmaid of science. The most illustrious philosophers have paid homage at the shrine of imagination, and have ever and anon been allured onward in the path of discovery. If you doubt it, go learn of Archimedes, or listen to the eloquence of Bacon, or sit at the feet of Rush. The visionary is the great conceiver and bold discoverer of new worlds,—the “Columbus” of the human faculties. We are all aware that innumerable errors and almost inextricable confusion have resulted from a misapplication of the speculative understanding, but shall we therefore repress it? He who does so checks powers as original, as lawful, as useful as the senses themselves,—powers on which social and scientific progress depend, and which, more than any other, ally men to the higher orders of being.

The subject of the “legal regulation of the practice of pharmacy” is one of vital importance. I say *vital*, because it has to do with the public life and health. It has been but a short time since that this beautiful city of Chicago, the metropolis of the West, had a sad but practical illustration of this fact, in the death, at the inadvertence of one of her druggists, of a young man from South Bend, Ind. How unaccountable it is, then, that those who have the reins of government under their control should be so blinded to their own interests, their children’s, their children’s childrea, and to universal humanity, as to disregard the momentous question of positive and stringent restriction of the practice of pharmacy.

It was my lot upon one occasion, in one of the towns of Ohio, on entering a strange drug store with a prescription for a friend,

to be severely dealt with, so far as words are concerned, simply because I insisted upon dispensing the prescription myself.

A thorough knowledge of therapeutics and *materia medica* is a duty as much incumbent upon the pharmacist as the physician, inasmuch as it renders the public safety doubly certain. Should a physician's prescription, in which, through some inadvertence, he had made a very serious and fatal mistake, fall into the hands of a druggist destitute of this necessary knowledge, he would, inasmuch as a *physician* had written it, dispense it accordingly, which would of course result in the death of the unfortunate patient. In my pharmaceutical experience I have not unfrequently received physicians' prescriptions which, if I had dispensed as written, would have been death to the patients. Taking into consideration the fact that the physician and pharmacist, although closely connected, represent two distinct professions, it is somewhat difficult for the former to perform the duties of the latter. There are but very few physicians who can scientifically dispense their own prescriptions, and quite a number that would not if they could, for want of time and other professional reasons.

We often hear it remarked by our customers that this prescription business should be done away, and that Doctors should prepare their own medicines, by which change they would be relieved of much labor and expense: labor, in having to run to the drug store designated by the physician; and expense, in having to pay the pharmacist not only his profit on the medicine, but also the percentage he pays to the physician for the run of his prescriptions, which, they declare, is their *own property* when they receive them from the physician and pay for them. However much the custom among pharmacists of paying a percentage to physicians for their prescriptions may be disapproved,* so far as I myself am concerned, I should feel better satisfied to have a prescription of mine subjected to pass through these different stages, and to these several charges, for the consequent frequent notices it would thereby receive (self-preservation being the first law of nature), than to have my physician deal

* It is most emphatically disapproved by the American Pharmaceutical Association.—EDITOR.

out at a venture his remedies from his pill-bags, the contents of which, however, is seldom more than a conglomeration of "*pukes, physics and sweats.*"

Figuratively speaking, the more intelligent hands through which a prescription passes, the better and safer it is for the patient, since to err is one of the most universal attributes of human nature, and that uncertainty pertains to all human calculations. How important it is then, that, pertaining to the promotion and preservation of *life and health*, there should be *varied* and *critical* examination. The intelligent pharmacist is a great conservative element in trade; he protects the community against thousands of accidents inseparable from the commerce in medicines and poisons, and yet the public expects him to charge for his prescriptions according only to their intrinsic and commercial value, without any reference to the time employed in the study of his profession, or to the responsibility connected therewith. Through his humanity he oftentimes distributes his medicines promiscuously among those from whom he never receives nor expects any compensation, his only gratification being that he feels entitled to a share in the Doctor's consolation, viz., "Pure and undefiled religion is this, to visit the sick and the afflicted, relieve the distressed, &c., &c." Prof. Parrish, in a paper read before you three years ago, truly delineated my ideal of a professional pharmacist, as follows :

"He should have a neat suit of rooms in a building having no aspect of a store, no bulk windows, or show cases. On entering the reception room, the patron should be shown to a seat furnished with suitable reading matter, in order to relieve the tedium of necessary detention. The prescription to be compounded, should be taken to the laboratory adjoining, duly registered, and prepared *secundem artem*, &c., &c." I hope soon to see the day when this idea will be universally practiced; when the educated pharmacist will be separated from and independent of the commercial branch of the business; when the public shall use just as much discrimination in the choice of a pharmacist to dispense their medicines as a physician to prescribe them.

Notwithstanding diplomas in this country are worthless so far as any indication of real worth are concerned, graduation at a

regular pharmaceutical college should be made a duty incumbent upon every individual wishing to practice the profession.

It is very frequently the case, that in the absence of the physician, the pharmacist is called upon to prescribe, and even to visit patients, and in cases not a few to use the knife.

This is not his business, does not come within the range of his profession ; however, in cases of emergency he has to comply, and yet the public appreciation of the scientific attainments of a Pharmacist is not much better than what it was of a hospital steward during the late war.

In conclusion, friends, let us cultivate a love for our profession. It is one which, from its indispensable importance and from the extent and directness of its contact with the public mind, must contribute largely to the moulding of the character of our country. Let us study it and strive to bring about that period when its name shall everywhere be suggestive of a harmonious combination of the noblest qualities of *mind and heart*.

ST. LOUIS MEDICAL SPRING.

BY SAMUEL S. GARRIGUES.

The artesian well producing this medicinal water is located at St. Louis, Gratiot County, State of Michigan.

With the idea of finding salt, a company was formed to put down a well. The first 40 feet was through clay, gravel and boulder ; the next 30 feet through blue clay ; the next 30 feet was through fire clay, when a bed of shale was struck, and the drilling for 15 feet more was through shale rock. After that the drilling was through gravel, until a depth of 200 feet was reached, when the drill struck the cavity of a mineral rock, through which water issued with such force as to throw stone and gravel quite a distance out of the well. The flow still continues at the rate of 280 gallons per minute.

Prof. S. P. Duffield, of Detroit, has made some investigations, with the following results :

Analysis of water from St. Louis Well, calculated on the imperial gallon. Temperature of water 50° Fhr. Constant Specific Gravity 1.011.

Sulphate of Lime,	.	.	.	.	66.50
Silicate of Lime,	.	.	.	.	6.72
Chlorine—a trace.					
Bi-carbonate Soda,	.	.	.	.	106.40
“ Lime,	.	.	.	.	69.40
“ Magnesia,	.	.	.	.	17.50
“ Iron,	.	.	.	.	1.20
Silica, free,	.	.	.	.	2.88
Organic matter and loss,	.	.	.	.	2.00
					<hr/>
Total constituents,	.	.	.	.	272.60
Bi-carbonates,	.	.	.	.	194.62
Free Carbonic Acid in gallon,	.	.	.	.	6.21
Sulphuretted Hydrogen—traces.					
Total mineral matter in gallon,	.	.	.	.	270.60

In regard to the medicinal qualities of the spring, he says: “I would call attention to the fact of the current of electricity or magnetism (time and experiment must develop which), that the stream of water carries. How much this will contribute to its efficacy must only be proven by experience in the habit of the observing practitioner. As regards the rationale of this magnetic state of the spring, I candidly admit I am not able to give a solution which would probably in future years be either satisfactory to myself or physicists at large. I would therefore advise full and free investigations, which may explain what now seems an enigma.”

MICHIGAN SALT.

BY SAMUEL S. GARRIGUES.

The first satisfactory evidence of existence of saline waters within the limits of our State, of a strength sufficient to render their manufacture profitable, was obtained by Dr. Houghton previous to 1840, while prosecuting that geological survey of the State, which was undertaken at that early period, and which

has aided so largely in unfolding and developing its natural resources.

The Saginaw Valley has the honor of having practically proved the wisdom of our first State Geologist in regard to her saline wealth, and of having demonstrated in a few short years, to an extent hardly to be credited, its unlimited amount, as well as its exceedingly profitable and beneficial nature.

The first salt operations there were commenced in 1859, a company called the East Saginaw Salt Manufacturing Co. having been organized through the influence of Dr. Geo. A. Lathrop, and the first well being completed in March, 1860. The first salt was made in July, 1860. The following summary shows the amount of salt manufactured each year since the business commenced:

<i>Commenced.</i>	<i>Bbls.</i>
1860,	4,000
1861,	125,000
1862,	243,000
1863,	466,000
1864,	529,073
1865,	477,200
1866,	407,997
1867,	474,721
1868,	555,690
1869,	577,569

INSPECTION.

The want of a good inspection system was long felt by those who devoted special pains to making a pure article. At first, as is apt to be the case in the inspection of all new enterprises, the manufacture of Michigan salt was careless and unreliable. Most of the salt made was of excellent quality in all respects, but some was quite otherwise. All, nevertheless, went upon the market as Saginaw Salt, which consequently acquired in some instances an unfortunate reputation. To correct this evil, the manufacturers generally associated themselves for the purpose of mutual protection, and last winter secured the passage of a law providing for a rigid inspection of all Michigan Salt under

the authority of the State. This law confers ample power to prevent and punish all improper practices in the manufacture of salt, and the Inspector is entirely independent of the salt manufacturers, deriving his appointment from the Governor and Senate.

The grades of salt as established by the State Inspector, specimens of which are on exhibition, are as follows :

No. 1 Salt.

Fine.—In bbls., 280 lbs., suitable for general use and all family purposes.

Packers.—In bbls., 280 lbs., suitable for packing and bulking meat and fish ; warranted one of the purest and best brands of salt for such purposes.

Solar.—In bbls., 280 lbs. A superior article for packing purposes, made by sun evaporation.

ANALYSIS OF SAGINAW BRINES.

	<i>Bay City.</i>	<i>E. Saginaw.</i>	<i>Saginaw City.</i>
Sulphate of lime,	0.396	0.098	0.098
Chloride of calcium,	0.530	3.287	2.643
“ magnesium,	0.412	1.774	1.069
“ sodium,	15.267	16.871	17.540
Per oxyd. of iron,		0.011	
Water,	83.395	76.855	78.680
	Goesmann.	Chilton.	Goesmann.

There are slight traces of bromine and iodine not sufficient to weigh.

ANALYSIS OF SAGINAW SALTS.

	<i>Fine or Kettle Salt.</i>	<i>Steam Salt.</i>
		<i>Packers.</i>
Chloride of sodium,	93.892	95.327
Chloride of calcium,	1.446	0.649
“ magnesium,	0.771	0.313
Moisture,	3.430	3.308
Sulphate of lime,	0.461	0.363
	<hr/>	<hr/>
	100.000	100.000
	Hahn.	Hahn.

Experience proves that the best quality of salt can be made from Michigan brines, and that a great preponderance of the Saginaw Salt sold in the market has been found as pure as any manufactured elsewhere.

THE UNITED STATES CABINET OF PRACTICAL GEOLOGY AND MINING.*

BY JOHN L. KIDWELL.

The plan for organizing the Cabinet at the seat of government is as follows, with a view to exhibit those minerals in particular which are capable of application to arts and manufacture. The geological memorials of each State and Territory are arranged in stratigraphical order, so as to facilitate comparisons between the geological formations and the palæontological remains of all parts of the country. After embodying a complete system of extinct fauna and flora, and of the rocks in which they are found, all duplicate specimens will be held for exchange with other cabinets. A series of alcoves, corresponding to all the States and Territories, have been prepared for the collection and preservation of such specimens. The collections include: coals, salt, sulphur, mineral waters, limestones, quartz, native manures, fire and potters' clay and building material; specimens throwing light on the geological structure of the country, such as fossils and lithological, or rock specimens.

It is in contemplation to collect, as opportunity may offer, models of all mining and metallurgical machinery-implement apparatus, and specimens of all the various products of metallurgical processes, such as regulus and matslag, and other fur-

* At the invitation of the Hon. Joseph Wilson, Commissioner of the General Land Office, I paid a hurried visit to the apartments occupied by Mr. A. R. Rossler, the accomplished Geologist of the Land Office, and am indebted to his courtesy for the few, yet interesting facts embraced in this report. Plans for a permanent and extensive building, entirely devoted to the purposes of a Cabinet, will be presented to the next Congress. The American Pharmaceutical Association can aid materially in securing this national institution by the influence of its members through the representatives of their districts in Congress.

nace products; dressed and concentrated ores, amalgam and tailings; also, sections of models and working plans of mines, to illustrate the principles and practical application of mining engineering.

It is perhaps hardly requisite to dwell on the necessity that exists for such an institution. All the leading governments of Europe, where mining forms at all an important source of revenue to the country, possess their museums, and we are, of all the great powers, the only one without a mining bureau or cabinet. The United States is usually not in the rear of nations in the march of improvement or in the fostering of enterprise calculated to advance the prosperity of the country.

Such museum or cabinet is needed, because without it, it will be impossible to obtain a clear idea of, or accurate information regarding the universal resources of the several States and Territories. We will find there the characters of the minerals from every part of the country, from which reliable statistics and more accurate and general information can be collected and obtained better than by any other method. No department of the Government is so well adapted to the organization of the museum as the General Land Office—the nature of the occupation of its employees bring them more in contact with the miner and quarryman than any other of the officers of the Government. The ramifications of the Land Office extend into all the mining regions, and its officers can, with but little additional labor, procure proper material for the formation of such cabinet or museum. The cabinet when completed will afford such facilities as to give at a glance an idea of the resources of each State and Territory. It is evident that to accommodate the enormous collections that will ultimately be made, a suitable building should be erected especially for the purpose, inasmuch as there is nothing of the kind in Washington that could be made available. The suit of rooms in the Land Office department is now devoted to the cabinet already accumulated; but I presume that nobody anticipates that these rooms would hold a fraction of the collections necessary to illustrate, even in an imperfect manner, the mineral wealth of a territory so vast as the United States. The collections already made by the various Government sur-

veys and expeditions would fill such a space to overflowing several times over. These collections, the property of the Government, and now stored in the cellar of the Smithsonian Institution, and, in fact, perhaps elsewhere, would belong legitimately to this museum.

The question will naturally arise in the minds of those unacquainted with the subject, what benefits are to be gained—what good will come from the formation of this institution? The benefits are numerous and varied. Through it we will be able to obtain more accurate information than is possible at present of the character and relative value of the mineral products of all sections of the country, and more reliable statistics of our mineral wealth as a nation. The chief of the museum would be in constant communication with all persons in the country who are in a position to give accurate information on these subjects, and would not have to depend on the interested statements of mine owners and superintendents, or of irresponsible persons, anxious to magnify the importance of their own districts at the expense of truth and to the disparagement of their neighbors. It will enable us to utilize the results of Government surveys and explorations, and furnish to the Government useful data on which to base mining legislation, whereby to obtain in the most satisfactory and efficient manner the revenue from this department of the national wealth. I am confident that in this one item the museum will repay the Government manifold the amount of money expended upon it. Another result, and by no means the least that I foresee, is the accumulation here of reliable information on the subject of working metals, whereby the best processes in each case can be ascertained, which will prevent the waste of many times the amount of money that the whole enterprise will cost. Every year millions of dollars are thrown away in fruitless attempts to accomplish impossible results in metallurgy. This can never, of course, be entirely checked, though the more intelligent class of miners is anxious to learn, and many would avail themselves of this means of enlightenment who now work in the dark, simply because they have no means of knowing better.

I might go on detailing arguments in favor of the establish-

ment of the museum almost *ad infinitum*, but I shall desist. The present Land Office Cabinet has been built up without any appropriation from the Government, and comparatively small as it is, is an earnest of what can be done if the proper authorities lend a helping hand. I cannot believe but that Congress will take the matter in hand in a liberal spirit if the members can only be made to understand the importance of the undertaking. We have in the new countries, between the Pacific States, or the West, and the eastern base of the Rocky Mountains in the East, a region large enough for an empire of itself, and abounding in minerals. Untold wealth awaits the labors of the hardy miner and demands that the Government should make some systematic efforts for its utilization. As yet, about nothing has been done, and some such plan as the present is absolutely necessary.

LIST OF SOCIETIES, LIBRARIES, JOURNALS AND INDIVIDUALS,

To whom complimentary copies of the Proceedings of this Association are forwarded.

The State Libraries of all the States of the Union.		
Maine Pharmaceutical Association,	Portland,	Maine.
Bowdoin College,	Brunswick,	"
Dartmouth College,	Hanover,	New Hampshire.
Amherst "	Amherst,	Massachusetts.
Harvard University,	Cambridge,	"
Massachusetts College of Pharmacy,	Boston,	"
City Library,	"	"
" Hospital,	"	"
Boston Medical and Surgical Journal,	"	"
" Athenæum,	"	"
University of Vermont,	Burlington,	Vermont.
Brown University,	Providence,	Rhode Island.
Trinity College,	Hartford,	Connecticut.
Yale College,	New Haven,	"
College of Pharmacy of the City of N. Y.,	New York,	New York.
American Druggists' Circular,	"	"
New York Medical Journal,	"	"
Astor Library,	"	"
Mercantile Library,	"	"
Long Island Historical Society,	Brooklyn,	"
Philadelphia College of Pharmacy,	Philadelphia,	Pennsylvania.
American Journal of Pharmacy,	"	"
College of Physicians,	"	"
Pennsylvania Hospital,	"	"
Academy of Natural Sciences,	"	"
Franklin Institute,	"	"
American Philosophical Society,	"	"
Philadelphia Library,	"	"
Mercantile Library,	"	"
American Journal of Medical Sciences,	"	"

Medical and Surgical Reporter,	Philadelphia, Pennsylvania.
Dental Cosmos,	" "
Linnæan Society,	Lancaster, "
Maryland College of Pharmacy,	Baltimore, Maryland.
University of Maryland,	" "
Smithsonian Institution,	Washington, Dist. Columbia.
Congressional Library,	" "
Surgeon-General U. S. Army,	" "
Pharmaceutical Association of the Dis-	" "
trict of Columbia,	" "
Richmond Medical Journal,	Richmond, Virginia.
Nashville Journal of Medicine & Surgery,	Nashville, Tennessee.
University of Louisiana,	New Orleans, Louisiana.
Cincinnati College of Pharmacy,	Cincinnati, Ohio.
Cincinnati Academy of Medicine,	" "
Cincinnati Lancet and Observer,	" "
Dr. Langdon, Longview Lunatic Asylum,	" "
Wayne Medical Society,	Richmond, Indiana.
Western Journal of Medicine,	Indianapolis, "
Iowa State Medical Society,	Des Moines, Iowa.
Detroit Review of Medicine & Pharmacy,	Detroit, Michigan.
University of Michigan,	Ann Arbor, "
Chicago College of Pharmacy,	Chicago, Illinois.
" Medical Examiner,	" "
" " Journal,	" "
St. Louis College of Pharmacy,	St. Louis, Missouri.
" Medical and Surgical Journal,	" "
" Medical Reporter,	" "
" Academy of Science,	" "
" Mercantile Library,	" "
" Public School Library,	" "
Leavenworth Medical Herald,	Leavenworth, Kansas.
Pacific Medical and Surgical Journal,	San Francisco, California.
Montreal Chemists' Association,	Montreal, Canada.
Canadian Pharmaceutical Society,	Toronto, "
Sociedad de farmacia argentina, Prof. Carlos Murray,	Buenos Ayres.
British Pharmaceutical Conference, Dr. J. Attfield,	London.
Pharmaceutical Journal and Transactions,	London.
Chemical News,	London.
Chemist and Druggist,	London.
London Lancet,	London.
British Museum,	London.
Liverpool Chemists' Association.	
Pharmaceutical Society at Edinburgh.	
Academie Royale des Sciences de Belgique,	Bruxelles.

428 SOCIETIES TO WHOM PROCEEDINGS ARE FORWARDED.

Société de Pharmacie de Bruxelles.

Journal de Pharmacie d'Anvers.

Société de Pharmacie, Mr. Henri Buignet, Secrétaire, Paris.

Académie des Sciences, Paris.

Journal de Pharmacie et de Chimie, Paris.

Répertoire de Pharmacie, Paris.

Schweizer Apotheker-Verein, Mr. R. Lindt, President, Bern.

Schweizerische Wochenschrift für Pharmacie, Mr. Gruner, Bern.

Oesterreichischer Apotheker Verein, Wien.

Oesterreichische Zeitschrift für Pharmacie, Wien.

K. K. Gesellschaft der Aerzte, Dr. Hauke, Secretary, Wien.

K. K. Akademie der Wissenschaften, Wien.

K. Bayer, " " München.

Neues Repertorium für Pharmacie, Prof. Buchner, München.

Vierteljahresschrift " " Prof. Wittstein, München.

Neues Jahrbuch für Pharmacie, Dr. Vorwerk, Speyer.

Archiv der Pharmacie, Prof. Dr. H. Ludwig, Jena.

Chemisches Centralblatt, Dr. Rud. Arendt, Leipzig.

Jahresbericht für Chemie, &c., Prof. Dr. H. Will, Giessen.

Jahresbericht für Pharmacognosie, Pharmacie und Toxicologie, Prof.
Dr. Wiggers, Göttingen.

Annalen der Chemie und Pharmacie, Prof. Dr. Wöhler, Göttingen.

K. Akademie der Wissenschaften, Göttingen.

" " Berlin.

Pharmaceutische Central-Halle, Dr. H. Hager, Berlin.

Pharmaceutische Zeitung, Bunzlau.

Pharmaceutische Gesellschaft in St. Petersburg, Dr. A. Casselmann, St.
Petersburg.

Pharmaceutische Zeitschrift für Russland, St. Petersburg.

Pharmaceutisches Institut, Dorpat, Russia.

Pharmaceutical Institution, Stockholm, Sweden.

LIST OF PUBLICATIONS RECEIVED

For the American Pharmaceutical Association.

Societies and Editors are respectfully requested to forward all publications intended for the American Pharmaceutical Association to the Permanent Secretary,

JOHN M. MAISCH,
1607 Ridge Avenue, Philadelphia, Pa.

Circular, No. 2, War Department, Surgeon-General's Office, Washington, Jan. 2, 1869.—Report on excisions of the head of the femur for gunshot injury.

American Journal of Medical Sciences, Philadelphia.

Dental Cosmos, Philadelphia.

Pacific Medical and Surgical Journal, San Francisco. One number.

The Pharmacist, Chicago.

Catalogue of the Michigan State Library for 1869. Lansing.

The Canadian Pharmaceutical Journal, Toronto, Ont. Three numbers.

Pharmaceutical Journal and Transactions, London.

The law to regulate the sale of poisons within Great Britain. By William Flux, attorney at law, &c. London, 1869.

Bulletin de la Société de Pharmacie de Bruxelles. Six numbers.

Neues Jahrbuch für Pharmacie, Speyer.

Wittstein's Vierteljahresschrift, München.

Buchner's Neues Repertorium, München.

Allgemeine Theorie der Bewegung und Kraft, als Grundlage der Physik und Chemie. Von Friedrich Mohr. Braunschweig, 1869.

Anzeiger der Kaiserl. Akademie der Wissenschaften in Wien, 1869.

Schweizerische Wochenschrift für Pharmacie, 1868.

Pharmaceutische Zeitschrift für Russland, 1869.

Pharmacopœa suecica. Editio VII. Stockholm, 1869.

Commentarius medico-practicus in pharmacopœæ suecicæ editionem septam. Auctore Nic. Joh. Berlin. Lundæ, 1869.

Farmaceutisk Tidskrift. Redigerad af Bl. Lindman. Stockholm, 1867, 1868.

Om den Pharmaceutiska undervisningen i Sverige och det Pharmaceutiska Institutét.

- Svensk Pharmaceutisk Bibliographi, af N. P. Hamberg. Stockholm, 1862.
- Om Anilinfärger och dermed färgade Väfnader, af Dr. N. P. Hamberg, Stockholm, 1865.
- Kemisk undersökning af Vattnet i S: T. Ragnhilds Helsobrunn i Söderköping, af Dr. N. P. Hamberg. Stockholm, 1867.
- Nagra ord om legala kemiska analyser vid förgiftningar, af Dr. N. P. Hamberg, 1865.
- Utdrag ut Berättelsen till K. Sundhets—Kollegium om ar 1867 verkställda Apoteksinspectioner, af Dr. N. P. Hamberg.
- Kemisk undersökning af vattnet uti atskilliga brunnar i Stockholm, af N. P. Hamberg, 1868.
- Bestämning af Jod uti Aska af Laminaria digitata, Laminaria saccharina och Zostera marina, &c., af Dr. N. P. Hamberg. Stockholm, 1866.
- Die Burtscheider Thermen bei Aachen. I. Analyse des Victoriabrunnens, von Dr. N. P. Hamberg. II. Monographische Skizze der Burtscheider Bäder, von Dr. B. M. Lersch. Aachen, 1862.
- Untersuchungen des Heilbrunnens von Ronneby, von Dr. N. P. Hamberg zu Stockholm.
- Nachrichten von der K. Gesellschaft der Wissenschaften, &c. Göttingen, 1868.
- Jahresbericht über die Fortschritte der Pharmacognosie, Pharmacie und Toxicologie, für 1868. Von Prof. Wiggers und Husemann.

CONSTITUTION AND BY-LAWS PROPOSED BY THE BUSINESS COMMITTEE.*

*This is a portion of the report of the Business Committee, printed on page 25, on which a Committee has to report at the next Annual Meeting (see page 45.) It is inserted in this place for convenience, to facilitate comparison with the present Constitution. See also resolutions on page 87, in reference to the Committee on the Progress of Pharmacy.

J. M. MAISON,

Permt. Secretary.

CONSTITUTION.

ARTICLE I. This Association shall be called the "American Pharmaceutical Association." Its aim shall be to unite the educated and reputable Pharmacutists and Druggists of the United States in the following objects :

1. To improve and regulate the drug market, by preventing the importation of inferior, adulterated or deteriorated drugs, and by detecting and exposing home adulteration.

2. To establish the relations between Druggists, Pharmacutists, Physicians and the people at large, upon just principles, which shall promote the public welfare, and tend to mutual strength and advantage.

- 3 To improve the science and the art of pharmacy by diffusing scientific knowledge among Apothecaries and Druggists, fostering pharmaceutical literature, developing talent, stimulating discovery and invention, and encouraging home production and manufacture in the several departments of the drug business.

4. To regulate the system of apprenticeship and employment so as to prevent, as far as practicable, the evils flowing from deficient training in the responsible duties of preparing, dispensing and selling medicines.

5. To suppress empiricism, and, as much as possible, to restrict the dispensing and sale of medicines to regularly educated Druggists and Apothecaries.

ARTICLE II. The officers of the Association shall be a President, two or more Vice-Presidents, a Permanent Secretary, a Local Secretary and a Treasurer, all of whom, with the exception of the Permanent Secretary, shall be elected annually, and shall hold office until an election of successors.

BY-LAWS.

CHAPTER I.

Of the President and Vice-Presidents.

ARTICLE I. The President shall preside at all meetings of the Association ; in his absence or inability, one of the Vice-Presidents, or in the absence of all, a President pro tempore shall perform the duties of President.

ARTICLE II. In the absence of the Permanent Secretary, the President shall appoint a Recording Secretary, pro tempore.

ARTICLE III. In meetings the President shall take the chair at the proper time ; announce all business ; receive all proper motions, resolutions, report and communications, and put the vote as soon as the meeting is ready.

ARTICLE IV. In all balloting and on questions upon which the yeas and nays are taken, the President is required to vote, but his name should be called last ; in other cases he shall not vote, unless the members be equally divided, or unless his vote, if given to the minority, will make the decision equal, and in case of such equal division, the motion is lost.

ARTICLE V. He shall enforce order and decorum ; it is his duty to hear all that is spoken in debate, and in case of personality or impropriety he shall promptly call the speaker to order. He shall decide all questions of order, subject to the right of appeal, unless in cases where he prefers to submit the matter to the meeting ; decide promptly who is to speak when two or more members rise at the same moment ; and be careful to see that business is brought up in proper order.

ARTICLE VI. He shall have the right to call a member to the chair, in order that he may take the floor, in debate. He shall see that all the officers and committees attend to their respective duties, and that the Constitution and By-Laws are properly enforced.

ARTICLE VII. He shall nominate the chairmen of all committees, unless provided for in the By-Laws, or otherwise directed by the Association.

ARTICLE VIII. He shall sign the certificates of membership, approve all foreign correspondence, and countersign orders on the Treasurer. He shall obey the instructions of the Association, and authenticate by his signature, when necessary, its proceedings.

ARTICLE IX. He shall present at each annual meeting a report of the operations of the Association during the year, with such information pertaining to its condition and prospects, and the object it has in view, together with such suggestions for its future management as may seem to him proper.

CHAPTER II.

Of the Permanent Secretary.

ARTICLE I. The Permanent Secretary shall be elected to hold office permanently, during the pleasure of the Association. He shall receive from the Treasurer an annual salary, and the amount of his travelling expenses in addition to his salary.

ARTICLE II. He shall preserve fair and correct minutes of the proceedings of the meetings, and carefully preserve, on file, all reports, essays and papers of every description received by the Association, and shall be charged with the necessary foreign and scientific correspondence, and with editing, publishing and distributing the Proceedings of the Association, under the direction of the Executive Committee.

ARTICLE III. He shall read all papers handed him by the President for that purpose; shall call and record the yeas and nays whenever they are required to be called; shall notify the chairman of every special committee of his appointment, giving him a list of his colleagues, and stating the business upon which the committee is to act; and shall notify every member of the time and place of each annual meeting.

ARTICLE IV. He shall be, *ex officio*, a member of the Executive Committee.

CHAPTER III.

Of the Local Secretary.

ARTICLE I. The Local Secretary shall be elected annually, at the last session of the Annual Meeting, and shall be a resident of the city at which the next Annual Meeting of the Association is to be held.

ARTICLE II. He shall assist the Permanent Secretary in his duties; shall co-operate with any local committee in making arrangements for the Annual Meeting; shall correspond with the chairmen of the several committees, and with other members, in advance of the meeting, for the promotion of its objects, and shall have the custody of specimens, papers and apparatus destined for use or exhibition at the meetings.

CHAPTER IV.

Of the Treasurer.

ARTICLE I. The Treasurer shall collect and take charge of the funds of the Association, and shall hold, sign and issue the certificates of membership.

ARTICLE II. He shall pay no monies unless by the order of the chairman of a committee authorized to appropriate funds of the Association.

ARTICLE III. He shall report to the Executive Committee, previous to each Annual Meeting, the names of such members as have failed to pay their annual contributions for three years, and also the names of such as have failed to return their certificates of membership, after having been officially disconnected with the Association, and having been duly notified to return them.

ARTICLE IV. He shall present a statement of his accounts at each Annual Meeting, that they may be audited.

CHAPTER V.

Of Committees.

ARTICLE I. There shall be elected annually five standing committees:—An Executive Committee, a Committee on the Progress of Pharmacy and a Com-

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mittee on the Drug Market, each to consist of five members; a Committee on Papers and Queries and a Business Committee, each to consist of three members.

ARTICLE II. The Executive Committee, of which the Permanent Secretary shall be a member, shall have charge of the revision of the Roll, the investigation of application for membership, and the publication of the Proceedings.

ARTICLE III. They shall report at each meeting a revised roll of members, with appropriate notices of deceased members, and the names of any who, having become disconnected with the Association, refuse to return their certificates of membership as provided by the By-Laws.

ARTICLE IV. They shall furnish to each member of the Association at least one copy of the annual publication of the Proceedings, which publication shall contain the corrected roll of members, full minutes of the several sittings, the Report of the President and of the Committees, together with such addresses, scientific papers, discussions, notices of new processes and preparations as the Executive Committee may deem worthy of insertion, and shall fix the price at which the Proceedings shall be sold.

ARTICLE V. The Committee on the Progress of Pharmacy, of which the Local Secretary shall be a member, shall report annually to the Association on the improvements in Chemistry, Practical Pharmacy, and the collateral branches, and on any new works bearing on these subjects published in this country or elsewhere.

ARTICLE VI. The Committee on the Drug Market shall report annually the fluctuations in the supply and demand of imported drugs, the variations in quality, and the adulterations, and sophistications coming under their observation or reported to them by others; and they shall be authorized to report upon any adulterations and sophistications of immediate interest, through the Pharmaceutical Journals, as soon as practicable after their discovery.

ARTICLE VII. The Committee on Papers and Queries shall receive all Reports of Standing Committees, and all papers for the Association. They shall designate which of them shall be read at length, or which by title, and shall prepare or have prepared synopses of such others as they may deem desirable; they shall, in connection with the Business Committee, arrange the time which may be most appropriate or convenient for reading them.

ARTICLE VIII. The Committee on Papers and Queries shall report, near the close of each Annual Meeting, a proper number of questions of scientific and practical interest, the answers to which may advance the interests of Pharmacy, and shall procure the acceptance of as many such questions for investigation as may be practicable.

ARTICLE IX. Any person writing a paper to be read before the Association, or for publication in its Proceedings, must furnish a copy of the same to the Committee on Papers and Queries, and their approval must be obtained previous to its being read before the Association.

ARTICLE X. It shall be the duty of every Standing Committee making a report annually to the Association, in like manner to furnish a copy of the

same, together with a synopsis of its contents, to the Committee on Papers and Queries before the first annual session of the Association.

ARTICLE XI. The Business Committee shall be charged with the transmission of unfinished business from one Annual Meeting to another, and with collecting, arranging and expediting the business throughout the various sessions of the Annual Meetings.

ARTICLE XII. In the election of any Committee (other than the Standing Committees of the Association) unless otherwise ordered, it shall be the duty of the President to nominate the first member of such Committee, who may then be elected by the Association; the member so elected shall nominate the second member of the Committee, who may then be likewise elected, and he in turn shall nominate the third member of the Committee, and so on until the requisite number has been elected.

CHAPTER VI.

Of Members.

Same as Article II of Constitution, as printed in the volume of Proceedings for 1868 (Vol. 16,) page 476, substituting "articles" for "sections." (See page 439 of this volume.

CHAPTER VII.

Of Meetings.

ARTICLE I. The meetings shall be held annually, or as the Association may from time to time determine; provided, that in case of failure of this from any cause the duty of calling the Association together shall devolve upon the President, or one of the Vice-Presidents, with the advice and consent of the Executive Committee.

ARTICLE II. The order of business at the first session of each Annual Meeting shall be as follows:

Section 1. Promptly, at the time named in the notice issued for the meeting, the President, or in his absence one of the Vice-Presidents, or in their absence a President pro tempore, shall officiate.

Section 2. In the absence of the Permanent Secretary the President shall appoint a Recording Secretary pro tempore, who shall perform the duties of the Permanent Secretary until his arrival.

Section 3. members shall constitute a quorum for the transaction of business.

Section 4. The President shall appoint a Committee of three persons to examine the credentials of delegates, which Committee shall attend to that duty, and report to the Association as soon as practicable, when the Secretary shall call the roll, noting the names of delegates and members in attendance.

Section 5. The Executive Committee shall present names recommended for membership, when the President having ascertained that a quorum of members is present, shall order an election by ballot, and appoint two tellers.

Section 6. Reports of Committees shall be presented, read by their titles or in full, and laid on the table for future consideration.

Section 7. The President shall call the Roll of Colleges and Associations represented, requesting each delegation in turn to appoint one member, the persons so selected to act as a Committee to nominate officers for the ensuing year; in addition to which he shall appoint from the Association at large three members to act with the Committee.

Section 8. The Reports of the Executive Committee of the Permanent Secretary, and of the Treasurer, shall be read by title or in full.

Section 9. Incidental business may be called up by the Business Committee.

Section 10. The first session shall close with the reading of the President's Annual Report, and the reference of any portions of it requiring action, to appropriate Committees.

ARTICLE III. The order of business at the second session of each Annual Meeting shall be as follows:

Section 1. The President shall call the Association to order.

Section 2. The Secretary shall read the minutes of the preceding meeting, which may be amended if necessary, and shall then be approved.

Section 3. The Report of the Committee on Nominations shall be read; when the President shall appoint tellers and order a ballot to be taken for the Officers and Committees nominated.

Section 4. The officers elected shall take their respective places.

Section 5. The Executive Committee shall present names recommended for membership, when a ballot shall be ordered for their election.

Section 6. Reports of Standing Committees shall be read.

Section 7. Reports of Special Committees shall be read.

Section 8. A Committee of five shall be appointed to examine and report upon specimens exhibited.

Section 9. Unfinished business may be brought up.

Section 10. New business may be brought forward by the Business Committee.

ARTICLE IV. The order of business at subsequent sessions shall be determined by the Business Committee, with the consent of the Association.

CHAPTER VIII.

Of Rules of Order.

ARTICLE I. During periods fixed by vote for scientific discussion and the exhibition of specimens and processes, the ordinary rules of parliamentary bodies shall be suspended, but at other times shall be enforced by the presiding officer, from whose decision, however, appeals may be taken, if required by five members, and the meeting shall thereupon decide without debate.

ARTICLE II. When a question is regularly before the meeting and under discussion, no motion shall be received but to adjourn, to lay on the table, for the previous question, to postpone to a day certain, to commit or amend, to postpone indefinitely; which several motions have precedence in the order in which they are arranged. A motion to adjourn shall be decided without debate.

ARTICLE III. No member may speak twice on the same subject, until every member wishing to speak has spoken, when he may speak again.

ARTICLE IV. On the call of any two members, the yeas and nays shall be ordered, when every member shall vote, unless excused by a majority of those present, and the names and manner of voting shall be entered on the minutes.

CHAPTER IX.

Miscellaneous.

ARTICLE I. In all such points of order as are not noticed in these By-Laws, the Association is to be governed by the established usages in similar institutions.

ARTICLE II. Every proposition to alter or amend these By-Laws shall be submitted in writing, and may be balloted for at the next regular meeting, when, upon receiving the votes of three-fourths of the members present, it shall become a part of the By-Laws.

ARTICLE III. No one or more of these By-Laws shall be suspended.

Forms to be signed by persons making application for membership, and testimonials, the same as at present.

CONSTITUTION

OF THE

American Pharmaceutical Association.

PREAMBLE.

Whereas, The advancement of Pharmaceutical knowledge and the elevation of the professional character of Apothecaries and Druggists throughout the United States are dear to us in common with all well disposed pharmacutists; and *whereas*, a large portion of those in whose hands the practice of pharmacy now exists are not properly qualified for the responsible offices it involves, chiefly by reason of the many difficulties that impede the acquirement of a correct knowledge of their business :—

Therefore, We, the members of a Convention now met at Philadelphia, [September, 1852,] composed of Apothecaries and Druggists from different sections of the Union, and from all the Colleges and Societies therein existing, with the object of deliberating on the condition of our profession, do hereby resolve and constitute ourselves into a permanent Association, to meet annually, at such times and places as may hereafter be determined, for more effectually accomplishing the objects for which we are now assembled, and do now adopt the following

CONSTITUTION.

ARTICLE. I.

This Association shall be called the American Pharmaceutical Association. Its aim shall be to unite the educated and reputable Pharmacutists and Druggists of the United States in the following objects :

1st. To improve and regulate the drug market, by preventing the importation of inferior, adulterated or deteriorated drugs, and by detecting and exposing home adulteration.

2d. To establish the relations between druggists, pharmacutists, physicians and the people at large, upon just principles, which shall promote the public welfare and tend to mutual strength and advantage.

3d. To improve the science and the art of pharmacy by diffusing scientific knowledge among apothecaries and druggists, fostering pharmaceutical litera-

ture, developing talent, stimulating discovery and invention, and encouraging home production and manufacture in the several departments of the drug business.

4th. To regulate the system of apprenticeship and employment so as to prevent, as far as practicable, the evils flowing from deficient training in the responsible duties of preparing, dispensing and selling medicines.

5th. To suppress empiricism, and as much as possible to restrict the dispensing and sale of medicines to regularly educated druggists and apothecaries.

ARTICLE II.—*Of the Members.*

Section 1. Every pharmacist and druggist, of good moral and professional standing, whether in business on his own account, retired from business or employed by another, and those teachers of pharmacy, chemistry and botany who may be specially interested in pharmacy and materia medica, who, after duly considering the objects of the Association and the obligations of its Constitution, are willing to subscribe to them, are eligible to membership.

Section 2. The mode of admission to membership shall be as follows: Any person eligible to membership may apply in writing, with the endorsement of two members in good standing, to any member of the Executive Committee, who shall report his application to the said Committee.

If after investigating his claims they shall approve his election, they shall, at the earliest time practicable, report his name to the Association, and he may be elected by two-thirds of the members present on ballot.

Section 3. No person shall be considered a member of this Association until he shall have signed the Constitution, and paid into the Treasury the sum of three dollars as an initiation fee and the annual contribution for the current year. All persons who become members shall be considered as permanent members, but may be expelled for improper conduct by a vote of two-thirds of the members present at any annual meeting.

Section 4. Every member shall pay in advance into the hands of the Treasurer the sum of three dollars as his yearly contribution, and is liable to lose his right of membership by neglecting to pay said contribution for three successive years. Members shall be entitled, on the payment of five dollars, to receive a certificate of membership signed by the President, one Vice President, Permanent Secretary and Treasurer, covenanting to return the same to the proper officer on relinquishing their connection with the Association.

Section 5. Resignation of membership shall be made in writing to the Permanent Secretary or Treasurer; but no resignation shall be accepted from any one who is in arrears to the Treasurer. All resignations shall be acknowledged in writing by the officer who receives them, and shall be reported at the next annual meeting.

Section 6. Every local Pharmaceutical Association shall be entitled to five delegates in the annual meetings, who, if present, become members of the Association on signing the Constitution, without being ballotted for.

Section 7. Pharmacentists, Chemists and other scientific men, who may be

thought worthy of the distinction, may be elected honorary members upon the same conditions and under the same rules as appertain to active members. They shall not, however, be required to contribute to the funds, nor shall they be eligible to hold office or to vote at the meetings.

ARTICLE III.—*Of the Officers.*

Section 1. The officers shall be a President, two or more Vice Presidents, a Permanent Secretary, a Local Secretary and a Treasurer, who shall, with the exception of the Permanent Secretary, be elected annually, and shall hold office until an election of successors.

Section 2. The Permanent Secretary shall be elected to hold office permanently during the pleasure of the Association; he shall receive from the Treasurer an annual salary and the amount of his travelling expenses in addition to his salary.

Section 3. The President shall preside at the meetings, and administer the rules of order usual in deliberative assemblies. He shall nominate all special committees, except a majority of the members present direct a resort to balloting or other means.

He shall sign the certificates of membership, approve all foreign correspondence, and countersign orders on the Treasurer.

He shall present at each annual meeting a report of the operations of the Association during the year, with such information pertaining to its condition and prospects and the object it has in view, together with such suggestions for its future management as may seem to him proper.

Section 4. In case of the temporary absence or inability of the President, his duties shall devolve on one of the Vice-Presidents in the order of their names.

Section 5. The Permanent Secretary shall keep fair and correct minutes of the proceedings of the meetings, and carefully preserve on file all reports, essays, and papers of every description received by the Association, and shall be charged with the necessary foreign and scientific correspondence, and with the editing, publishing and distributing the Proceedings of the Association under the direction of the Executive Committee. He shall furnish the Chairman of every special Committee with a list of its members and a copy of the minute of its appointment, and shall notify every member of the time and place of each annual meeting. He shall be a member of the Executive Committee.

Section 6. The Local Secretary shall be elected annually at the last session of the annual meeting, and shall be a resident of the city at which the next annual meeting of the Association is to be held. It shall be his duty to assist the Permanent Secretary in his duties, to co-operate with any local committee in making arrangements for the annual meeting, to correspond with the Chairmen of the several Committees and with other members, in advance of the meeting promotive of its objects, and to have custody of specimens, papers and apparatus destined for use or exhibition at the meetings. He shall act as Secretary at the first meeting, or until another shall be appointed, in case of the absence of the Permanent Secretary.

Section 7. The Treasurer shall collect and take charge of the funds of the Association, and shall also hold and issue the certificates of membership. He shall pay no monies unless by the order of the chairman of one of the standing or of a special committee, authorized to appropriate funds of the Association, such order to be countersigned by the President.

He shall present a statement of his accounts at each annual meeting, that they may be audited. He shall also report to the Executive Committee, previous to each annual meeting, the names of such members as have failed to pay their annual contributions for three years, and also the names of such as have failed to return their certificates of membership after having been officially disconnected with the Association, and duly notified to do so.

ARTICLE IV.—*Of the Standing Committees.*

Section 1. There shall be five standing committees elected annually—an Executive Committee, a Committee on the Progress of Pharmacy, a Committee on the Drug Market, each to consist of five members; a Committee on Scientific Queries and a Business Committee, each to consist of three members.

Section 2. The Executive Committee, of which the Permanent Secretary shall be one of the members, shall have charge of the revision of the roll, the investigation of application for membership, and the publication of the Proceedings. They shall report at each meeting a revised roll of members, with appropriate notices of deceased members, also the names of any who, having become disconnected with the Association, refuse to return their certificates of membership as provided by the Constitution.

The annual publication of the Proceedings shall contain the correct roll of members, full minutes of the several sittings, the Report of the President and of the Committees, together with such addresses, scientific papers, discussions, notices of new processes and preparations as the Executive Committee may deem worthy of insertion. At least one copy shall be furnished each member of the Association.

Section 3. The Committee on the Progress of Pharmacy, of which the Local Secretary shall be one of the members, shall report annually to the Association on the improvements in Chemistry, Practical Pharmacy and the collateral branches, and on any new works bearing on these subjects published in this country or in Europe.

Section 4. The Committee on Scientific Queries shall report, near the close of each Annual Meeting, a proper number of questions of scientific and practical interest, the answers to which may advance the interests of Pharmacy, and shall procure the acceptance of as many such questions for investigation as may be practicable, and report before the next succeeding Annual Meeting.

Section 5. The Business Committee shall be charged with the transmission of unfinished business from one Annual Meeting to another, with collecting, arranging and expediting the business throughout the various sessions of the Annual Meeting.

ARTICLE V.—*Of the Meetings.*

Section 1. The meetings shall be held annually, or as the Association may from time to time determine; provided, that in case of failure of this from any cause, the duty of calling the Association together shall devolve upon the President, or one of the Vice-Presidents, with the advice and consent of the Executive Committee.

Section 2. At the opening of each annual meeting, the President, or, in case of his absence, one of the Vice-Presidents shall call the meeting to order and preside until after an election of officers; in case the President and Vice-Presidents are absent, this duty shall devolve on the chairman of the Executive Committee, or, in his absence, on any member chosen by vote of those present.

In the absence of the Permanent Secretary the President shall appoint a Secretary *pro tempore*.

The order of business at the first session of each annual meeting shall be as follows:

1st. The appointment by the President of a committee of three persons to examine credentials, and report the names of those duly accredited.

2d. The Executive Committee shall report the names of new members and of persons present recommended for membership, who shall be immediately balloted for.

3d. The roll of those in attendance, as thus completed, shall be called by the Permanent Secretary.

4th. The report of the Standing and Special Committees shall be read by their titles, or in full, and laid on the table for future consideration.

5th. A committee to nominate officers for the ensuing year shall be appointed, consisting of one nominated by each delegation in attendance, and three members appointed by the President from among those not delegated, to report at the opening of the next session.

The first session shall close with the reading of the President's Annual Report, and referring any portion requiring the action of Committees.

After the first session, the order of business shall be determined by the nature of the subjects presented and by the consent of the majority.

Section 3. During periods fixed by vote for scientific discussions and the exhibition of specimens and processes, the ordinary rules of parliamentary bodies shall be suspended, but at other times shall be enforced by the presiding officer, from whose decisions, however, appeals may be taken if required by five members, and the meeting shall thereupon decide without debate.

A motion reduced to writing and seconded shall be open to discussion, and while it is before the meeting no motion shall be received unless to amend, divide, commit, to lay on the table, postpone or to adjourn; and a motion to adjourn shall be decided without debate.

On the call of any member, the yeas and nays shall be ordered, when every member shall vote unless excused by a majority of those present, and the names and manner of voting shall be entered on the Minutes.

ARTICLE VI.

This Constitution may be altered or amended by a vote of three-fourths of the members present at any regular meeting, and notice to alter or amend the same shall be given at least one sitting before a vote thereupon.

Approving of the objects of the American Pharmaceutical Association, I am desirous of joining it in membership; and having read its Constitution, I hereby signify my approval of it, and subscribe to it.

Address.....

I hereby agree to return my certificate of membership in the American Pharmaceutical Association to the Treasurer of that body, if I shall hereafter cease to be connected in membership with it.

TESTIMONIALS.

The undersigned being personally acquainted with _____ of _____ testify to his moral character, his skill as a practical Druggist and Pharmacist, and his professional probity and good standing, and they recommend him for membership in the American Pharmaceutical Association.

NAME _____

ADDRESS.

ROLL OF MEMBERS.

HONORARY MEMBERS.

UNITED STATES OF AMERICA.

Montgomery J. Bailey, M. D.,	New York,	New York,	1856
Elias Durand,	Philadelphia,	Penna.,	1857
Daniel B. Smith,	"	"	1856
George B. Wood, M. D.,	"	"	1857

FOREIGN COUNTRIES.

BELGIUM.

A. T. DeMeyer, <i>Brussels</i> , 1868.	Norbert Gille, <i>Brussels</i> , 1868.
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ENGLAND.

Henry Deane, <i>London</i> , 1868.	Daniel Hanbury, <i>London</i> , 1868.
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FRANCE.

M. Robinet, <i>Paris</i> , 1868.

GERMANY.

Dr. Hermann Hager, <i>Berlin</i> , 1868.	Dr. Frederick Mohr, <i>Bonn</i> , 1868.
Dr. G. C. Wittstein, <i>Munich</i> , 1868.	

RUSSIA.

Dr. Arthur Casselmann, <i>St. Petersburg</i> , 1868.	Dr. G. Dragendorff, <i>Dorpat</i> , 1868.
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SWITZERLAND.

Dr. F. A. Flückiger, <i>Berne</i> , 1868.

ACTIVE MEMBERS.

UNITED STATES OF AMERICA.

ALABAMA.

Mobile.

Blackwood, Crawford.....	1857
Candidus, Philip Charles.....	1857
Primo, Manuel.....	1868

Wetumpka.

Bates, Louis A.....	1869
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CALIFORNIA.

San Francisco.

Dickey, George S.....	1859
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Greatrex, Thomas J.....	1869
Hinckley, George Edward, M. D.	1859
Keith, William H.....	1859
Moffitt, Thomas F.....	1861
Perkins, William Alexander.....	1869
Steele, Henry.....	1859
Steele, James G.....	1859

Los Angeles.

Preuss, Edward A.....	1866
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Mare Island.

Anderson, Joseph E..... 1869

Petaluma.

Maynard, Frederick T..... 1864

Vallejo, Solano Co.

Topley, James..... 1869

Visalia, Tulare Co.

Blake, James W..... 1869

COLORADO.

Central City.

Best, John..... 1866

COLUMBIA, DISTRICT OF

Washington.

Bannvart, Charles A..... 1856

Callan, James N 1857

Ferguson, Robert B..... 1867

Fitzgerald, John E..... 1869

Fitzgerald, Joseph S..... 1869

Gaither, Francis..... 1860

Harbaugh, Valentine..... 1856

Hickling, Daniel P..... 1867

Kidwell, John L..... 1856

Lineaweaver, Kline C..... 1864

Mauss, Richard G..... 1869

Milburn, John A..... 1858

Murray, Talbot C..... 1863

Nairn, Joseph W..... 1858

Rothrock, Weller..... 1869

Sayre, Charles Le Roy..... 1869

Simms, Giles G. C..... 1860

Sylvester, Samuel R..... 1858

Tyson, Samuel F., M. D..... 1857

CONNECTICUT.

New Haven.

Daggett, Alfred, Jr..... 1865

Rockville.

Peck, Nathan F..... 1861

Waterbury.

Dikeman, Nathan..... 1865

DELAWARE.

Wilmington.

Bringhurst, Ferris..... 1862

Dixon, John..... 1867

McInall, Edward, Jr 1867

Shoemaker, Benjamin..... 1867

Shoemaker, Charles..... 1867

Simms, John H., M. D..... 1867

New Castle.

Ferris, Charles E., M. D..... 1867

FLORIDA.

Fort George.

Rollins, John F..... 1859

GEORGIA.

Augusta.

Land, Robert H..... 1859

Macon.

Zeilin, John Henry..... 1859

Milledgeville.

Clark, John M..... 1857

Grieve, Fleming C..... 1859

Cotting, William A..... 1869

ILLINOIS.

Alton.

Bugge, Andreas Valdemar..... 1868

Bloomington.

Dyson, Dunbar S..... 1856

Lackey, Ira..... 1866

Thompson, Robert..... 1869

Bradford, Stark Co.

Plummer, David G..... 1869

Chicago.

Bartlett, N. Gray..... 1864

Biroth, Henry..... 1865

Blaney, James V. Z., M. D..... 1865

Bliss, Sylvester S..... 1865

Blocki, William F..... 1863

Borchardt, Julius C..... 1867

Breed, Marvin A..... 1866

Brown, Thomas..... 1865

Bryan, Alexander B..... 1865

Bryan, Frederick A..... 1865

Buck, George..... 1860

Curth, Nicholas T..... 1865

D'Evers, Henry G..... 1865

Dietzsch, Emil..... 1865

Ebert, Albert E..... 1864

Ehrman, John W.....	1867
Fiske, Calvin J.....	1869
Fitch, Charles H.....	1869
Fredigke, Charles Christian.....	1869
Fuller, Henry W.....	1865
Fuller, Oliver F.....	1869
Gale, Edwin O.....	1857
Gale, William H.....	1857
Garrison, Herod Dailey.....	1869
Grassly, Charles William.....	1868
Hambright, George M.....	1865
Hanning, John T.....	1864
Heuermann, Henry W.....	1869
Heylman, Charles.....	1865
Hirsh, Joseph.....	1869
Hooper, John H.....	1865
Jamieson, Thomas N.....	1869
Jones, Charles S.....	1869
Mahla, Frederick, Ph. D.....	1864
McPherson, George.....	1865
Mead, Nehemiah.....	1865
Mill, James W.....	1864
Milleman, Philip L.....	1866
Muller, William H.....	1865
Murray, Allen F.....	1869
O'Farrell, Henry T.....	1869
Paine, James D.....	1857
Parsons, John.....	1865
Patterson, Thomas H.....	1869
Poorman, Samuel F.....	1869
Reinhold, William.....	1866
Sargent, Ezekiel H.....	1864
Schroeder, Nobel.....	1866
Sharp, J. Perine.....	1865
Smith, Albert A.....	1869
Strehl, Louis C.....	1866
Sweet, Henry.....	1865
Tourtlot, Emil P.....	1866
Tourtlot, Frank J.....	1866
Vanderburgh, Abram C.....	1869
Whitfield, Thomas.....	1865
Willard, Joseph.....	1865
Wilson, Julius H.....	1869
Woltersdorf, Louis.....	1865

Freeport.

Burrell, John.....	1865
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Galesburg.

Boyd, Abraham.....	1869
Clark, Albert B., Jr.....	1868
Johnson, Newton A.....	1869

Peoria.

Colburn, Walter.....	1869
Miles, Benjamin Franklin.....	1869
Singer, Peter J.....	1869

Quincy.

Malone, Charles F.....	1869
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Rock Island.

Pettit, Henry M.....	1860
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Waukegan, Lake Co.

Ingalls, Albert O.....	1869
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Young America.

Peirrepoint, Newton.....	1869
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INDIANA.

Auburn.

Ehlers, John H.....	1867
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Fort Wayne.

Van Sweringen, Hiram.....	1865
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Indianapolis.

Miller, Edward T.....	1859
Sloan, George W.....	1857

Lafayette.

Schrader, Henry.....	1869
Shalter, Uriah F.....	1864

La Porte.

West, Frederick.....	1866
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Logansport.

Brown, George W. ..	1865
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New Albany.

Scribner, Benjamin Franklin....	1858
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Richmond.

Samson, Almon.....	1864
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Terre Haute.

Austin, George W.....	1865
Barr, Thomas H.....	1853
Gallagher, James.....	1865

Vincennes.

Jardella, Jerome B.....	1865
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IOWA.

Des Moines.

Hunt, Nathan W..... 1869

St. Paul Junction.

Bennett, Charles H..... 1869

KANSAS.

Junction City.

Porter, Edward T..... 1867

Lawrence.

Leis, George..... 1869

Leavenworth.

Brown, Robert J..... 1862

Harrop, Joseph W..... 1869

Parham, Robert..... 1868

Price, Joseph Warren..... 1869

Smith, Thomas Edward..... 1869

Topeka.

Greene, Henry S..... 1869

KENTUCKY.

Frankfort.

Forgey, Alfred V..... 1865

Louisville.

Carey, George H..... 1866

Colgan, John..... 1867

Diehl, Charles Lewis..... 1863

Fletcher, Norman..... 1867

Hughes, Henry A..... 1857

Jenkins, Thomas E., M. D..... 1866

Kern, Flora, Jr..... 1868

Krim, John M..... 1867

Newman, George A..... 1866

Pfingst, Ferdinand J..... 1867

Rademaker, Charles J..... 1867

Sacksteder, Francis..... 1867

Wilder, Graham..... 1868

Zausinger, Gustavus A..... 1867

LOUISIANA.

New Orleans.

Keffer, Frederick A..... 1862

Keffer, William P..... 1866

Pope, John H..... 1860

New Iberia.

Lee, James A..... 1856

MAINE.

Augusta.

Partridge, Charles K..... 1867

Bangor.

Harlow, Noah Smith..... 1859

Eastport.

Shead, Edward E..... 1866

Lewistown.

Cook, John G. 1859

Portland.

Atwood, William..... 1859

Cummings, Henry T., M. D..... 1853

Dana, Edmund, Jr..... 1859

Hay, Henry H..... 1867

Phillips, Walter F..... 1859

MARYLAND.

Baltimore.

Andrews, George W..... 1856

Baxley, J. Brown..... 1856

Benzinger, John S..... 1860

Block, John..... 1860

Brown, Alexander E..... 1863

Brown, William H 1863

Burrough, Edward Ewalt..... 1869

Burrough, Horace..... 1869

Caspari, Charles..... 1856

Caspari, William 1856

Dannattel, George F..... 1867

Dohme, Charles E..... 1863

Dohme, Lewis..... 1859

Donavin, Matthew W..... 1867

Elliott, Henry A..... 1859

Elliott, William..... 1868

Emich, Columbus V..... 1863

Frames, Joseph P..... 1868

Hancock, John F..... 1863

Jefferson, John H. B..... 1868

Jennings, N. Hynson..... 1857

Kirby, Thomas E., M. D..... 1863

Lampanius, Charles A..... 1867

Lauer, Michael J..... 1865

Leamy, James C..... 1867

Lilly, Alonzo, Jr..... 1863

McDaniel, James E..... 1860

Monsarrat, Oscar..... 1856

Moore, J. Faris..... 1856

Morrison, S. Ellwood.....	1863	Dows, Gustavus D.....	1865
Muth, John P.....	1864	Dyer, J. Howes.....	1865
O'Brien, Joseph C.....	1863	Eaton, Charles I.....	1867
Perkins, Elisha H.....	1857	French, George W.....	1865
Reifsnider, William E.....	1864	Fowle, Henry D.....	1853
Roberts, Joseph.....	1856	Gleeson, James A.....	1859
Russell, Eugene J.....	1856	Gleeson, Michael H.....	1859
Russell, E. Walton.....	1863	Hazeltine, Charles Benjamin R..	1867
Sharp, Alpheus P.....	1855	Henchman, Daniel.....	1853
Skinner, Joseph G.....	1864	Hoagland, Pratt R.....	1868
Smith, J. Jacob.....	1856	Hollis, Thomas.....	1853
Tilyard, Charles L.....	1867	Horton, William Francis.....	1869
Thompson, William S.....	1856	Kent, Robert R.....	1855
Thomsen, John J.....	1856	Kidder, Darius B.....	1858
Winkleman, John H.....	1864	Leary, John Thomas.....	1869
Wolf, Joseph A.....	1860	Lincoln, Henry Ware.....	1853
Worthington, Joseph Muse.....	1868	Littlefield, Alvah.....	1856
<i>Annapolis (Naval Academy.)</i>			
Street, Daniel B.....	1867	Lyon, Charles H., Jr.....	1868
<i>Hagerstown.</i>			
Winter, Jonas.....	1863	Markoe, George Frederick H.....	1863

MASSACHUSETTS.

Boston.

Atkinson, William D., Jr.....	1865	Patten, Ichabod Bartlett.....	1858
Atwood, Charles H.....	1856	Perry, Edward H..	1865
Babcock, James F.....	1865	Restieaux, Thomas.....	1863
Babo, Leopold	1859	Ricker, George D.....	1858
Bassett, Charles H.....	1867	Rogers, Charles F.....	1860
Boyden, Ashel.....	1853	Sheppard, Samuel A. D.....	1865
Brown, Joseph Taylor.....	1859	Simmons, Francis W.....	1865
Brown, Joseph Taylor, Jr.....	1869	Smalley, Elijah.....	1860
Brown, William.....	1858	Stuart, George A., M. D.....	1867
Burnett, Joseph.....	1852	Tompkins, Orlando.....	1859
Butterworth, John.....	1860	Tower, Levi, Jr.....	1860
Campbell, Isaac T.....	1859	Turner, T. Larkin.....	1853
Canning, Henry.....	1865	Underwood, Charles G.....	1865
Carter, Solomon.....	1865	Warren, Henry.....	1859
Clock, Frank B.....	1865	Whittemore, Eugene.....	1865
Colby, Moses D.....	1859	Wiley, Abraham S.....	1857
Colcord, Samuel M.....	1852	Wilkins, Daniel G.....	1865
Colton, James B.....	1865	Wilson, Benjamin O.....	1859
Connor, Thomas J.....	1867	Woodbridge, George W.....	1859
Cutler, Edward Waldo.....	1859	<i>Brighton.</i>	
Dana, Alfred C.....	1859	Warren, William.....	1867
Doliber, Thomas.....	1859	<i>Brookline.</i>	
Doolittle, Erastus H.....	1865	Bird, George W.....	1867

<i>Cambridge.</i>	
Hubbard, John H.....	1866
James, Thomas P.....	1857
<i>Cambridgeport.</i>	
Bayley, Augustus R.....	1859
Orne, Joel S.....	1859
Richardson, James H.....	1868
Thayer, Henry.....	1858
<i>Charlestown.</i>	
Dodge, Levi G.....	1859
Kettell, George P.....	1867
Melzar, Augustus P.....	1866
Stacey, Benjamin Franklin.....	1860
<i>Chelsea.</i>	
Buck, John.....	1855
<i>Dorchester.</i>	
Sanborn, Jeremiah, Jr.....	1865
<i>East Abington.</i>	
Arnold, Ezra W.....	1868
<i>Feltonville.</i>	
Safford, William Augustus.....	1865
<i>Great Barrington.</i>	
Whiting, Frederick T.....	1863
<i>Hingham.</i>	
Hunt, James L.....	1865
<i>Ipswich.</i>	
Geyer, Andrew.....	1865
<i>Lawrence.</i>	
Whitney, Henry M.....	1859
<i>Lowell.</i>	
Bailey, Frederick.....	1869
Kidder, Samuel, Jr.....	1859
<i>Lynn.</i>	
Proctor, Benjamin.....	1859
<i>New Bedford.</i>	
Blake, James E.....	1865
<i>Newburyport.</i>	
Goodwin, William W.....	1853
<i>Newton Corner.</i>	
Lowe, Charles H.....	1865
<i>North Adams.</i>	
Pettis, Newton C.....	1868
<i>North Andover.</i>	
Berrian, George W., Jr.....	1857

<i>North Bridgewater.</i>	
Bixby, Charles C.....	1859
<i>Rockport.</i>	
Blatchford, Eben.....	1857
Blatchford, Eben, Jr.....	1865
<i>Roxbury.</i>	
Savell, Charles E.....	1860
<i>Salem.</i>	
Emerton, James.....	1859
<i>Springfield.</i>	
Bigelow, Edmund.....	1860
Hooker, John.....	1867
<i>Worcester.</i>	
Bright, James Evesson.....	1868
McConville, Michael S.....	1859
McConville, Thomas A.....	1864
Scott, David.....	1855
Scott, Nelson R.....	1859

MICHIGAN.

<i>Almont.</i>	
Richardson, Daniel M.....	1866
<i>Ann Arbor.</i>	
Douglass, Samuel H., M. D.....	1869
Eberbach, Ottmar.....	1869
Mann, Emanuel.....	1866
Weeks, Eugene J.....	1866
<i>Battle Creek.</i>	
Wardell, Robert C.....	1860
<i>Bay City.</i>	
Street, John F.....	1869
<i>Chelsea.</i>	
Glazier, George P.....	1863
<i>Detroit.</i>	
Biddle, Henry T.....	1866
Chapman, Joseph R.....	1869
Duffield, Samuel P., Ph. D.....	1859
Fletcher, Francis E.....	1866
Griffith, John H.....	1866
Johnston, William.....	1860
L'Hommedieu, Charles.....	1866
Ronnefeld, Theodore.....	1866
Vernon, James.....	1866
<i>East Saginaw.</i>	
Dunk, Alfred A.....	1867

Garrigues, Samuel S., Ph. D.....	1855	Kalb, Theodore.....	1864
Melchers, Henry.....	1869	Kirkbride, Joseph C.....	1869
Simoneau, Leander.....	1869	Leitch, Arthur.....	1860
<i>Jackson.</i>		Mallinckrodt, Gustavus.....	1869
Holland, James M.....	1866	Mallinckrodt, Edward.....	1869
Meseroll, James C.	1867	Massot, Eugene L.....	1857
<i>Marine City.</i>		McBride, James.....	1864
Backus, James W.....	1867	Meyer, Christian F. G.....	1860
<i>Monroe.</i>		O'Gallagher, James.....	1858
Uhl, Charles F.....	1866	Primm, Hubert.....	1855
Weiss, Julius	1866	Randals, Evermont.....	1865
<i>Muskegon.</i>		Sander, Enno, Ph. D.....	1858
Wagener, Samuel H.....	1869	Scheffer, Henry W.....	1863
<i>Parma.</i>		Sennewald, Ferdinand W.....	1865
Landon, Alson.....	1866	Sherman, Oliver G., M. D.....	1869
<i>Portsmouth.</i>		Steer, Justin.....	1869
Taylor, Joseph E.....	1869	Tanton, Thomas.....	1865
<i>Saginaw City.</i>		<i>Kansas City.</i>	
Moll, William.....	1869	Brackett, Aurick S.....	1868
Vogel, Richard.....	1867	Breunert, Augustus.....	1868
<i>Schoolcraft.</i>		Mann, Albert H.....	1869
James, George R.....	1869	Rano, Charles O.....	1866
<i>Ypsilanti.</i>		Wilson, Richard E.....	1869
Frost, Josiah B.....	1866	<i>Mexico, Adrian Co.</i>	
MINNESOTA.		Llewellyn, John Frederick.....	1867
<i>Minneapolis.</i>		NEVADA.	
Savory, George Augustus.....	1869	<i>Aurora.</i>	
Shuey, William H.....	1864	Green, Alexander Alfred.....	1868
<i>St. Paul.</i>		<i>Virginia City.</i>	
Sweeney, Robert Ormsby.....	1866	Smith, David L.....	1868
MISSISSIPPI.		NEW HAMPSHIRE.	
<i>Jackson.</i>		<i>Concord.</i>	
Ash, Matthew F.....	1856	Morgan, James.....	1859
Buck, John T.....	1868	<i>Dover.</i>	
MISSOURI.		Tufts, Charles Augustus.....	1856
<i>St. Louis.</i>		<i>Ezeter.</i>	
Chamberlain, Guilford T.....	1853	Merrill, Charles A.....	1858
Connor, Lucius E.....	1869	<i>Keene.</i>	
Crawford, William H.....	1864	Dort, Oliver Gilman.....	1858
Crawley, Francis X.....	1869	<i>Manchester.</i>	
Hendel, Samuel D.....	1858	Littlefield, Chauncy B.....	1868
Jones, Charles K.....	1867	<i>New Market.</i>	
Jones, Isaac E.....	1858	Dearborn, George L.....	1853
		<i>Portsmouth.</i>	
		Thacher, Joseph Haven.....	1859

Somersworth.

Jones, Charles Mortimer.....	1869
Moore, George.....	1859

NEW JERSEY.

Jersey City.

Abernethy, Maxwell.....	1865
Kirsten, Adolph.....	1867
Laird, William R.....	1867
McKechnie, William W.....	1868
Mercein, James R.....	1865
Schank, William R.....	1867
White, George H.....	1868

Bordentown.

Hankins, Bunting.....	1865
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Burlington.

Allinson, William J.....	1862
Vandegrift, John A.....	1867

Elizabethport.

Frohwein, Richard.....	1867
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Madison.

Muchmore, William Fletcher....	1868
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Morristown.

Dalrymple, Charles H.....	1860
Voorhees, William S.....	1868

Mount Holly.

Coppuck, Peter V.....	1857
White, Aaron S.....	1860

Newark.

Dreher, Ernest.....	1869
Jacques, Isaac W.....	1869
Peters, Alexander C.....	1868
Schumann, Theodore.....	1860
Smith, Charles B.....	1868
Van Gieson, Theron W.....	1869

Plainfield.

Voorhees, William H.....	1868
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South Amboy.

Jacques, George W.....	1869
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Vincentown.

Heisler, Jacob.....	1868
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MEW MEXICO.

Santa Fé.

Krummeck, Jacob.....	1867
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NEW YORK.

New York City.

Aspinwall, James S.....	1855
Balluff, Paul.....	1860
Bedford, Peter Wendover	1859
Billings, Henry M.....	1869
Blake, Alexander V.....	1860
Brewer, William A.....	1853
Canavan, John.....	1855
Carle, John, Jr.....	1860
Cassebeer, Henry A.....	1858
Chandler, Charles F., Ph. D.....	1867
Coddington, Isaac.....	1855
Coggeshall, George D.....	1852
Colby, Ferris W.....	1865
Covell, Thomas Jefferson	1864
Currie, John H.....	1858
Davis, Benjamin.....	1869
Dege, George F.....	1868
Ditman, Andrew J.....	1868
De la Vergne, George W.....	1857
Dunn, Adolph G.....	1862
Earle, Sylvester M.....	1864
Faber, John.....	1857
Fisher, William.....	1862
Flynn; Michael.....	1866
Frey, John.....	1865
Fougere, Edmund C.....	1867
Frohwein, Max.....	1865
Frohwein, Theobald.....	1862
Gabaudan, Arthur W.....	1862
Gardiner, Warren B.....	1860
Gilmore, John W.....	1867
Gellatly, William A.....	1858
Giles, William M.....	1860
Goecke, Augustus Gottfried.....	1867
Goodman, Bernard.....	1867
Gravesend, Raymond.....	1859
Green, Thomas T.....	1858
Gridley, Junius.....	1853
Guthrie, Charles B., M. D.....	1852
Hale, Frederick.....	1855
Harner, James M.....	1867
Haviland, Henry.....	1857
Hays, Benjamin E.....	1866
Hays, David.....	1867
Hebberling, Gottfried	1867
Hegeman, William.....	1858

Higgins, James S	1862	<i>Brooklyn.</i>	
Hoffmann, Frederick, Ph. D.....	1867	Basset, Francis M.....	1860
Hohenthal, Charles F. L.....	1865	Baylis, William E. P.....	1860
Houston, Eugene Alexander.....	1864	Burt, Theodore F.....	1868
Hudnut, Alexander.....	1857	Close, George C.....	1858
Johnson, Edward L.....	1860	Conway, John F.....	1862
Kiersted, Henry.....	1858	Curtiss, Charles Grenville.....	1866
Kiersted, Henry T.....	1856	Davies, Robert J.....	1858
Kimmel, Henry.....	1867	Dunn, John A	1867
Kitchen, Charles W.....	1865	Dupuy, Eugene.....	1852
Krehbiel, Gustavus.....	1865	Heydenreich, Emil.....	1867
Lazell, Lewis T.....	1858	Heydenreich, F. Victor.....	1860
Leroy, Louis.....	1859	Jones, Thomas.....	1868
Marsh, Edward H.....	1858	Knowles, James S.....	1869
Mason, Alfred.....	1865	Lewis, Thomas.....	1867
Mayer, Ferdinand F.....	1859	Metcalf, Tristram W.....	1857
McKay, George J.....	1864	Newman, George A.....	1865
McKesson, John, Jr.....	1867	Niebrugge, John H.	1861
Milhau, Edward L.....	1858	Ollif, James H	1867
Milhau, John.....	1855	Owens, Richard J.....	1860
Molwitz, Ernest.....	1867	Parker, Herschel.....	1867
Morgan, James F.....	1865	Peduzzi, George S.....	1861
Neergaard, William.....	1859	Pyle, Cyrus.....	1859
Onderdonk, William H. C.....	1867	Rhodes, Robert R., M. D.....	1865
Osborne, Hampden.....	1869	Snyder, Ambrose C	1867
Osmun, Charles A.....	1868	Squibb, Edward R., M. D.....	1858
Peixotto, Moses L. M.....	1869	Tartiss, Alfred J.....	1867
Porter, George G.....	1860	Watson, William J.....	1860
Ramsperger, Gustavus.....	1860	Wilbur, Joshua G.....	1860
Reay, John W.....	1869	Wynn, William.....	1867
Reinold, Bernard H.....	1861		
Rice, Lucian M.....	1866	<i>Albany.</i>	
Robbins, Daniel C.....	1862	McMurdy, Robert S., M. D.....	1861
Sands, Robert A.....	1858		
Sands, George G.....	1867	<i>Buffalo.</i>	
Schofield, James L.....	1867	Peabody, William H.....	1857
Shedden, John W.....	1859		
Sheils, George E.....	1860	<i>Elmira.</i>	
Skelley, James T.....	1866	Morse, Henry C.....	1868
Southwick, George W.....	1860		
Weaver, James.....	1860	<i>Fishkill, on Hudson.</i>	
Weismann, Augustus W.....	1869	Moith, Augustus Theodore.....	1860
Wenck, George J.....	1869		
Westerfield, Joseph H.....	1858	<i>Flushing.</i>	
Wheeler, Lucian F.....	1858	Contant, James L.....	1868
Whitney, William H.....	1867		
Wright, George.....	1869	<i>Greenpoint.</i>	
Wright, William, Jr.	1859	Tapken, Theodore.....	1868
		<i>Middletown.</i>	
		King, James T.....	1859
		Rogers, William H.....	1869

<i>New Lebanon.</i>	
Tilden, Henry A.....	1858
<i>New Rochelle.</i>	
Welling, Samuel G.....	1860
<i>North Shore, S. I.</i>	
McRae, William H.....	1861
<i>Potsdam.</i>	
Thatcher, Hervey D.....	1865
<i>Rochester.</i>	
Blauw, Hippolytus A.....	1856
Breck, George.....	1866
Lane, Alfred S.....	1857
<i>Rondout.</i>	
Laycock, Washington.....	1857
<i>Sag Harbor.</i>	
Lobstein, J. F. Daniel.....	1868
<i>Saratoga Springs.</i>	
Champlin, Erastus N	1864
Fish, Charles F.....	1866
Fish, George H.....	1869
Stirling, Charles N.....	1867
<i>Staten Island.</i>	
Musgiller, Francis C.....	1867
<i>West Farms.</i>	
Webb, Henry E.....	1865
<i>Yonkers.</i>	
Stephens, William G.....	1860
Toplis, Robert J.....	1863

NORTH CAROLINA.

<i>Chapel Hill.</i>	
Saunders, Richard B.....	1858
<i>Raleigh.</i>	
Menninger, Henry J.....	1866
<i>Washington.</i>	
Gallagher, Charles K.....	1857

OHIO.

<i>Cincinnati.</i>	
Adderly, William H.....	1854
Arons, William C.....	1854
Berghausen, Edward.....	1864
Chapman, William B....	1852
Eger, George.....	1864
Fennel, Adolphus.....	1864
Foertmyer, Adolphus W.....	1864

Foertmyer, Charles.....	1864
Fratz, John G.....	1864
Fritsch, Henry.....	1864
Gordon, Oliver F.....	1857
Gordon, William J. M.....	1854
Greve, Theodore L. A.....	1864
Heinemann, Otto.....	1864
Helman, Charles M.....	1864
Henkel, Augustus....	1865
Hill, Alfred C.....	1864
Hill, Hiram H.....	1864
Hottendorf, Augustus.....	1864
Judge, John F.....	1866
Karrmann, William.....	1864
Keeshan, John.....	1864
Markward, James.....	1864
McPherson, George B.....	1867
Merrell, William S.....	1854
Miller, Robert T.....	1869
Odena, Frederick M.....	1866
Parr, John C.....	1856
Rees, Griffith.....	1864
Reinlein, Paul.....	1856
Reum, Hermann F.....	1864
Roemer, Daniel.....	1865
Scott, John.....	1854
Tully, Andrew J.....	1862
Wayne, Edward S.....	1854
Wells, Jacob David.....	1864
Yorston, Matthew M.....	1864

Alliance.

Barr, Peter H.....	1867
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Canton.

Geiger, Conrad John	1866
Geiger, Walter P.....	1867

Circleville.

Fickardt, George H.....	1864
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Cleveland.

Gaylord, Henry C.....	1869
Sackrider, Elijah W., M. D.....	1859

Dayton.

Crawford, John S.....	1868
Dietrich, Jacob W.....	1856

Dresden.

Dorsey, Thomas B.....	1866
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<i>Fulton.</i>		Crew, J. Lewis.....	1860
Debolt, Joseph H.....	1864	Dobbins, Edward T.....	1867
<i>Johnstown.</i>		Eberle, Charles L.....	1865
Jeannot, George Edward.....	1864	Eddy, Henry C.....	1869
<i>Logan.</i>		Eggert, Charles H.....	1857
Harrington, Frank.....	1869	Eldridge, George W.....	1865
<i>Navarre.</i>		Ellis, Charles.....	1852
Garver, Alexander	1866	Ellis, Evan T.....	1857
Grossklaus, John F.....	1859	England, Robert	1868
<i>Piqua.</i>		Erben, John S.....	1868
Drake, Robert S.....	1867	Evans, William, Jr.....	1860
<i>Springfield.</i>		Everhart, Augustus.....	1867
Casper, Thomas J., M. D.....	1867	Everson, John C.....	1863
<i>Toledo.</i>		Fox, Peter P.....	1869
Daniels, Thomas.....	1866	Grahame, Israel J.....	1856
<i>Xenia.</i>		Gristock, Charles F.....	1864
Allen, Alexander B.....	1869	Grove, John R.....	1868
<i>Youngstown.</i>		Haenchen, Charles Eugene.....	1865
Neal, Leander.....	1858	Hance, Edward H	1857
OREGON.		Hancock, Charles W.....	1868
<i>Portland.</i>		Hassard, Peter J.....	1853
Hodge, Charles.....	1859	Heintzelman, Joseph A.....	1858
PENNSYLVANIA.		Hubbell, Orange Scott..	1857
<i>Philadelphia.</i>		Hurst, John C	1868
Abell, Walter B.....	1867	Jefferson, Charles L.....	1869
Angney, John R.....	1867	Jenks, William J.....	1858
Archibald, Henry C.....	1867	Johnson, Benjamin F.....	1859
Ashton, George H.....	1864	Jones, Daniel S.....	1859
Bakes, William C.....	1864	Jones, Edward C.....	1864
Bauer, Louis G.....	1867	Jones, Samuel T.....	1867
Bispham, James L.....	1865	Keeney, Caleb R.....	1868
Blair, Andrew.....	1865	Keys, Roger.....	1868
Blair, Henry C.....	1868	Lancaster, Thomas A.....	1859
Blinkhorn, George.....	1860	Lippincott, Henry B.....	1868
Boring, Edwin McC.....	1867	Maisch, John M.....	1856
Bower, Henry.....	1860	McCollin, Samuel Mason.....	1864
Bower, Henry A.....	1868	McIntyre, William	1868
Bowman, Henry K.....	1869	Mellor, Alfred.....	1864
Bullock, Charles.....	1857	Miller, Adolphus W.....	1868
Bunting, Samuel S.....	1857	Milligan, Decatur	1867
Caldwell, James Marshall.....	1866	Moore, Joachim B.....	1860
Campbell, Samuel.....	1864	Needles, Caleb H.....	1868
Chapman, Samuel, M. D.....	1857	Neynaber, Adolphus F. W.....	1859
Coombe, Thomas R.....	1860	Parkinson, Robert B.....	1865
Cramer, Henry.....	1867	Parrish, Clemmons.....	1868
		Parrish, Dillwyn	1857
		Parrish, Edward.....	1852
		Percival, George G.....	1868

Perot, E. Raphael.....	1858	<i>Belleville.</i>	
Perot, T. Morris.....	1857	Green, Francis P.....	1864
Pile, Wilson H., M.D.....	1857	<i>Bethlehem.</i>	
Platzter, Robert.....	1865	Borhek, James T., Jr.....	1867
Preston, David.....	1868	Meyers, Edward T.....	1867
Procter, William, Jr.....	1853	Selfridge, Matthew M.....	1858
Raser, William H.....	1869	<i>Chambersburg.</i>	
Remington, Joseph P.....	1867	Cressler, Charles H.....	1868
Riley, Charles W.....	1868	Heyser, William, Jr.....	1856
Rittenhouse, Henry N.....	1857	<i>Columbia.</i>	
Robbins, Alonzo.....	1865	Meyers, James A.....	1867
Robinson, James S.....	1869	<i>Danville.</i>	
Roche, Edward M.....	1868	Von Nieda, John W.....	1868
Roche, William F.....	1868	<i>Erie.</i>	
Rosengarten, Mitchell G.....	1869	Nick, Hermann Charles.....	1869
Scattergood, George J.....	1860	Nick, William Frederick, Jr.....	1869
Seeger, Roland.....	1868	<i>Lancaster.</i>	
Shivers, Charles.....	1860	Heinitsh, Charles A.....	1857
Shinn, James T.....	1860	<i>Lebanon.</i>	
Shoemaker, George Y.....	1862	Lemberger, Joseph L.....	1858
Shoemaker, Joseph L.....	1867	<i>Phillipsburg.</i>	
Shoemaker, Robert M., Jr.....	1865	England, Howard.....	1868
Shoemaker, Richard H.....	1869	<i>Pittsburg.</i>	
Shryock, Allen.....	1868	Abel, Joseph.....	1864
Simes, J. Henry C.....	1865	Birch, John.....	1869
Smith, Ambrose.....	1857	Cherry, James B.....	1868
Smith, Isaac W.....	1867	Mattern, John C.....	1860
Snowden, George M.....	1857	Morgan, Milton C.....	1867
Stein, Jacob H.....	1869	Norgrave, Samuel K.....	1857
Taylor, Alfred B.....	1852	Rankin, Alfred J.....	1864
Taylor, William.....	1868	<i>Pottstown.</i>	
Thompson, William B.....	1858	Cunningham, John M.....	1867
Tilge, Frederick A.....	1868	<i>Pottsville.</i>	
Troth, Samuel F.....	1857	Kennedy, George W.....	1869
Van Orsdel, William E.....	1868	<i>Reading.</i>	
Vogelbach, Hermann A.....	1868	Raser, John Heyl.....	1867
Warner, William R.....	1857	Ziegler, Philip Milton.....	1867
Weaver, J. Thornton.....	1868	<i>Shippensburg.</i>	
Webb, William H., M.D.....	1867	Matthews, Charles C.....	1869
Weidemann, Charles A.....	1868	<i>South Bethlehem.</i>	
Wiegand, Thomas S.....	1857	Sieger, William S.....	1867
Wilder, Hans M.....	1866	<i>Towanda.</i>	
Wills, Clayton N.....	1864	Porter, Henry C.....	1869
Wilson, Adam H.....	1859	<i>Wilkesbarre.</i>	
Wright, Archibald W.....	1868	Tener, Richard, Jr.....	1863
<i>Ashland.</i>			
Delker, Frederick J.....	1868		

RHODE ISLAND.

East Greenwich.

Congdon, Albert J..... 1860

Newport.

Allen, William S. N..... 1865

Blackman, Lyman R..... 1865

Taylor, Robert J..... 1859

Providence.

Calder, Albert L..... 1859

Westerley.

Lattimer, Robert F..... 1857

SOUTH CAROLINA.

Columbia.

Heinitsh, Edward H..... 1867

Silliman, Lewis T..... 1859

TENNESSEE.

Columbia.

Larwill, Joseph H., Jr..... 1858

Memphis.

Hampson, Hugh H. 1869

Jones, George H. 1869

Johnson, Charles P..... 1868

Steever, Henry C..... 1865

Nashville.

Lillard, Benjamin 1869

VERMONT.

Brandon.

Cheney, Judson Rollin..... 1868

Highgate.

Crandall, Thomas V., M.D... 1866

St. Johnsbury.

Bingham, John C..... 1853

VIRGINIA.

Alexandria.

Stabler, Richard H., M.D..... 1856

Fredericksburg.

Cooke, James..... 1856

WASHINGTON TERRITORY.

Walla Walla.

Colman, Frederick W..... 1865

WISCONSIN.

Beloit.

Collins, Charles Frederick Gove 1859

Fond du Lac.

Curran, Edward S..... 1869

Green Bay.

Cherot, Leonce..... 1865

Mazomanie.

Senier, Alfred..... 1869

Milwaukee.

Drake, John R..... 1860

Prairie du Chien.

Wright, Edward M..... 1869

Tomah.

Griggs, Osmon J..... 1869

DOMINION OF CANADA.

QUEBEC.

Montreal.

D'Avignon, John Eugene..... 1866

Edwards, John Baker..... 1868

Gray, Henry R..... 1869

Mercer, Nathan..... 1867

ONTARIO.

Guelph.

Petrie, Alexander Bain... .. 1867

Hamilton.

Lawrence, Thomas..... 1867

London.

Moore, William Maurice..... 1866

Saunders, William 1860

Bradford.

Morgan, George Webster, Jr.... 1867

Stratford.

Waugh, George W..... 1862

WEST INDIES.

BERMUDA.

Hamilton.

Heyl, James B..... 1863

U. S. OF COLOMBIA.

Panama.

Herbruger, Florence O..... 1867

LIST OF DECEASED MEMBERS.

HONORARY MEMBERS.

		Elected.	Died.
Bache, Franklin, M.D.,	Philadelphia, Pa.,	1857,	1864
Farrington, Thomas,	Boston, Mass.,	1856,	1867
Pi��rre Fran��ois Guillaume Boullay,	Paris, France,	1868,	1869

ACTIVE MEMBERS.

		Elected.	Died.
Anderson, James H.,	New York, N. Y.,	1859,	1866
Bache, Charles L.,	San Francisco, Cal.,	1852,	1854
Balmer, James,	Baltimore, Md.,	1856,	1866
Barry, John W.,	Baltimore, Md.,	1856,	1861
Baynon, John,	Shrevesport, La.,	1858,	1862
Bigelow, Francis O.,	Medford, Mass.,	1859,	1863
Billings, Samuel J.,	New York, N. Y.,	1860,	1865
Blair, Henry C.,	Philadelphia, Pa.,	1855,	1862
Brown, John T.,	Boston, Mass.,	1859,	1860
Canavan, Benjamin,	New York, N. Y.,	1855,	1857
Carney, Charles Tibbetts,	Boston, Mass.,	1853,	1862
Churchill, George W.,	Chelsea, Mass.,	1865,	1869
Clency, William F.,	Cincinnati, O.,	1859,	1865
Coon, Walter S.,	New York, N. Y.,	1858,	1861
Cressman, Noah,	Waterloo, Canada West,	1863,	1864
Cunningham, James E.,	Pittsburg, Pa.,	1860,	1863
Cushman, Alexander,	New York, N. Y.,	1858,	1861
Dodge, John P.,	New York, N. Y.,	1855,	1863
Easterbrook, Ray B.,	New York, N. Y.,	1858,	1868
Emanuel, Louis M., M.D.,	Linwood, Pa.,	1857,	1868
Fish, George B.,	Saratoga Springs, N. Y.,	1860,	1866
Fish, Henry F.,	New York, N. Y.,	1852,	1868
Forester, Richard,	Brooklyn, N. Y.,	1860,	1862
Gay, William,	Cambridgeport, Mass.,	1858,	1862
Gerhard, John C.,	Cincinnati, O.,	1862,	1866
Geyer, Andrew,	Boston, Mass.,	1853,	1855
Groneweg, Louis,	Cincinnati, O.,	1864,	1866
Hageman, Frederick Augustus,	New York, N. Y.,	1853,	1860
Hill, Henry E.,	Detroit, Mich.,	1866,	1868
Jenkins, William Ellis,	Boston, Mass.,	1865,	1869
John, Frederick L.,	Philadelphia, Pa.,	1856,	1864
Junghanns, Charles A.,	Cincinnati, O.,	1858,	1862

Kennedy, Robert C.,	Cleveland, O.,	1865,	1868
Kent, Asbury,	Cincinnati, O.,	1854,	1860
Kent, William,	Cincinnati, O.,	1864,	1867
King, Henry,	New York, N. Y.,	1858,	1867
Knapp, Edwin E.,	Norwalk, Conn.,	1860,	1862
Laidley, Joseph,	Richmond, Va.,	1852,	1861
Lane, James B.,	Fitchburg, Mass.,	1856,	1867
Leitch, Alexander,	St. Louis, Mo.,	1858,	1868
Little, William B.,	Panama, U. S. Colombia,	1857,	1867
Longshaw, William, Jr., M.D.,	Bayou Sara, La.,	1858,	1864
McDonald, John,	Brooklyn, N. Y.,	1860,	1861
McIntyre, T. C., M.D.,	Washington, D. C.,	1858,	1862
Maxwell, James T.,	New York, N. Y.,	1855,	1860
Meakim, John (Pres. 1855-56),	New York, N. Y.,	1852,	1863
Nagle, John G.,	Baltimore, Md.,	1863,	1869
Nadand, James W.,	Cincinnati, O.,	1864,	1868
Olliffe, William J., M.D.,	New York, N. Y.,	1858,	1866
Osgood, Samuel W.,	Davenport, Iowa,	1858,	1860
Palmer, Albert G.,	Washington, D. C.,	1858,	1860
Peck, Samuel P.,	Bennington, Vt.,	1853,	1859
Philbrick, Samuel R., M.D.,	Boston, Mass.,	1852,	1859
Phillips, Llewellyn,	Baltimore, Md.,	1856,	1865
Polhemus, James L.,	Sacramento, Cal.,	1866,	1867
Pollard, Charles P.,	Marysville, Cal.,	1859,	1869
Pyle, J. Lindley,	Brooklyn, N. Y.,	1859,	1866
Rehfuss, Lewis,	Cincinnati, O.,	1854,	1856
Roberts, David,	Boston, Mass.,	1858,	1863
Rollman, Frederick,	Philadelphia, Pa.,	1862,	1864
Sands, Jesse M.,	New York, N. Y.,	1860,	1867
Scully, Harmar D.,	Pittsburg, Pa.,	1858,	1866
Smith, Charles Augustus,	Cincinnati, O.,	1852,	1862
Smith, Edwin R.,	Monmouth, Ill.,	1862,	1869
Squire, William H.,	Germantown, Pa.,	1862,	1865
Steiner, Henry,	Philadelphia, Pa.,	1857,	1858
Stevens, Ashbel Mead,	Cincinnati, O.,	1854,	1860
Stevens, Rufus Walker,	Somersworth, N. H.,	1859,	1868
Sweetser, Thomas A.,	South Danvers, Mass.,	1859,	1860
Thomas, William,	Jersey City, N. J.,	1855,	1856
Waite, S. B.,	Washington, D. C.,	1858,	1862
Weyman, George W., Ph.D.,	Pittsburg, Pa.,	1858,	1864
White, Daniel F.,	Charlestown, Mass.,	1859,	1864
White, William P.,	Chicago, Ill.,	1865,	1866
Whitehead, Silas,	Lynchburg, Va.,	1856,	1858
Wilson, George C.,	Boston, Mass.,	1859,	1861
Wiseman, C.,	Baltimore, Md.,	1856,	1862
Witzell, L.,	Cincinnati, O.,	1864,	1867
Wood, G. Davidge,	Baltimore, Md.,	1856,	1863
Woods, Samuel H.,	Boston, Mass.,	1859,	1869

LIST OF RESIGNATIONS.

Names.	Residence.		Date.
Bode, Charles H.,*	Cincinnati,	Ohio,	1864
Coggin, David, M. D.,†	Hingham,	Massachusetts,	1864
Kendrick, George S.,‡	Lebanon,	New Hampshire,	1858
Long, John C.,*	Philadelphia,	Pennsylvania,	1863
Peck, John E.,*	Newburgh,	New York,	1866
Ramsey, Alexander H.,*	Cambridge,	Massachusetts,	1859
Spence, Thomas R.,§	Cincinnati,	Ohio,	1857
Walsh, Francis S.,||	Washington,	District of Columbia,	1856
Webber, Oliver H.,*	East Cambridge,	Massachusetts,	1858

* No reason given. † Gone into practice as physician. ‡ Ill health. Gone out of business.
 § Gone into manufacture of tobacco. || Left business. Retired.

LIST OF MEMBERS DROPPED FROM THE ROLL.

Names.	Residence.		When Joined.
Bartlett, Charles F.,	New York,	New York,	1865
Chapman, George H.,	Boston,	Massachusetts,	1859
Coe, Sargent P.,	Portland,	Maine,	1860
Covell, Francis E.,	Portland,	Maine,	1865
Crew, Benjamin J.,	Philadelphia,	Pennsylvania,	1860
Crowther, Frederick A.,	Cincinnati,	Ohio,	1864
Doyle, John E.,	Springfield,	Massachusetts,	1866
Ellis, William,	Philadelphia,	Pennsylvania,	1864
Farrand, Jacob S.,	Detroit,	Michigan,	1866
Fiske, William,	Cleveland,	Ohio,	1857
Fuller, William S.,	Wilmington,	Ohio,	1866
Foss, George,	Hoboken,	New Jersey,	1868
Gillespie, Stawell W.,	Greensboro,	Alabama,	1866
Hatfield, Spencer C.,	New York,	New York,	1864
Hazard, Jabez H.,	New York,	New York,	1860
Johnson, Alexander M.,	Cincinnati,	Ohio,	1864
Jones, J. Stanley,	Washington,	District of Columbia,	1867
Lawrence, Francis,	Detroit,	Michigan,	1866
Leidy, Asher'S.,	Philadelphia,	Pennsylvania,	1857
Logan, William F.,	Williamsport,	Pennsylvania,	1866

Long, Gilbert,	Brooklyn,	New York,	1864
Luck, William J.,	Vincennes,	Indiana,	1859
Marsh, George,	Dedham,	Massachusetts,	1865
Merrill, Harlow M.,	Cincinnati,	Ohio,	1864
Morris, Henry B.,	Burlington,	New Jersey,	1864
Mullen, Wesley W.,	Philadelphia,	Pennsylvania,	1868
Parr, Michael,	Cincinnati,	Ohio,	1864
Peck, Henry T.,	Philadelphia,	Pennsylvania,	1868
Salpins, Augustus,	Cincinnati,	Ohio,	1864
Stearns, Frederick,	Detroit,	Michigan,	1860
Stearns, Samuel S.,	Detroit,	Michigan,	1866
Stratton, James,	Bordentown,	New Jersey,	1865
Thornton, Charles C.,	Yazoo City,	Michigan,	1860
Tomlinson, Edwin,	Gloucester,	New Jersey,	1865
Tower, William B.,	Boston,	Massachusetts,	1867
Weiss, Frederick,	Jeffersonville,	Indiana,	1867
Wheeler, George M.,	Detroit,	Michigan,	1860

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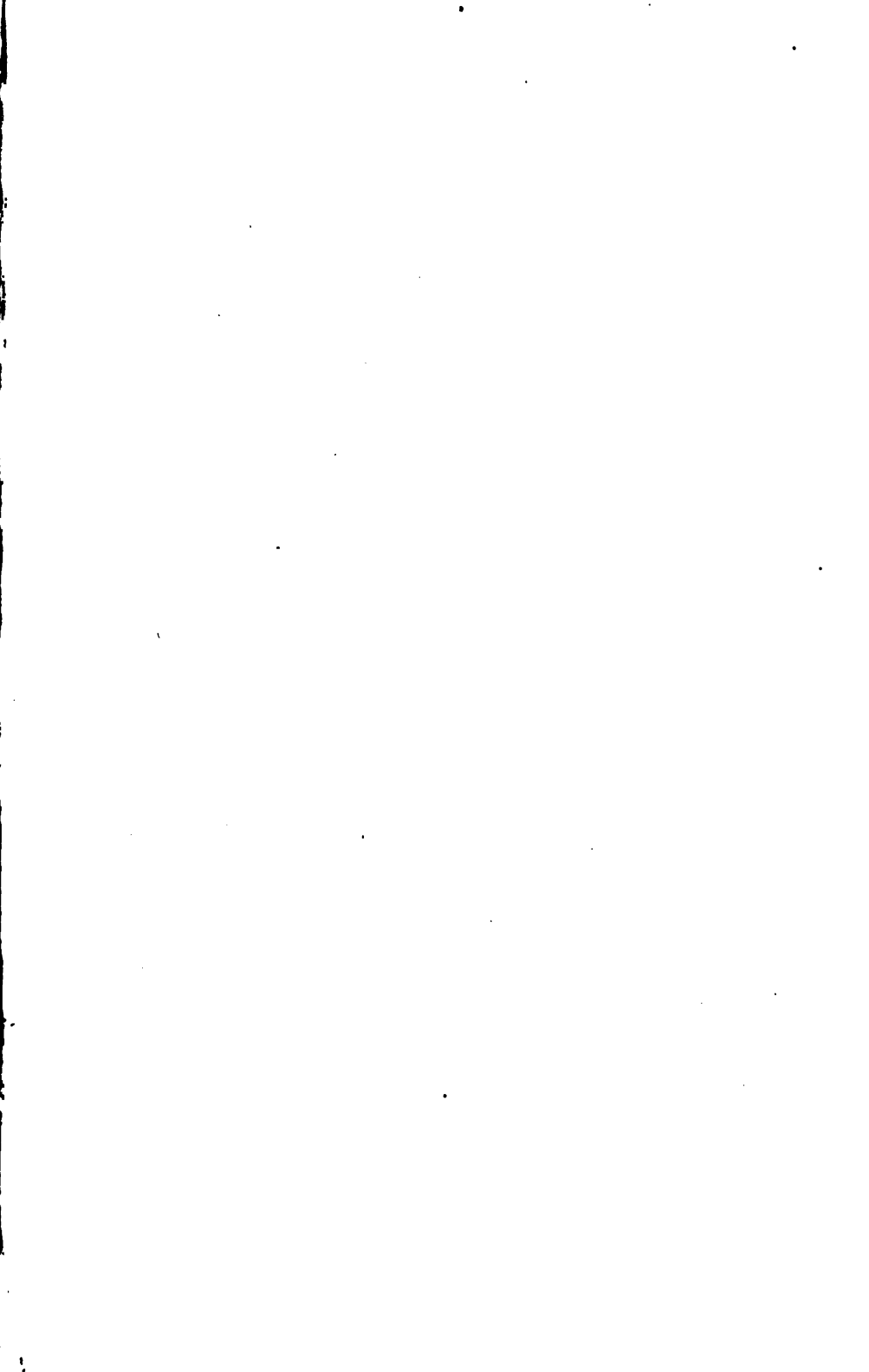
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1 gal

259 T